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THE JOHNS HOPKINS TRAVELLERS' CLUB.

The Travellers' Club of the University held its first meeting October 10, 1890. Addresses were made by Professor H. F. Reid of the Case School of Science, Cleveland, Ohio, and by Dr. Emil Hausknecht, for several years Professor of Pedagogics in the Imperial University of Tokyo. The following are abstracts of their remarks.

The Muir Glacier in Alaska. By Professor H. F. Reid, Ph. D.

A party, consisting of Messrs. H. P. Cushing, H. M. McBride, R. L Casement, C. A. Adams, J. F. Morse, and Harry F. Reid, passed last summer encamped at the mouth of Muir Glacier, Alaska, for the purpose of studying and exploring the glacier.

The mouth of Muir Glacier is situated in latitude 58° 50′ N., and longitude about 136° W. of Greenwich. It lies among the mountains near the southern end of the great St. Elias range, and drains an area of about a thousand square miles. The snow which falls on this area is compressed into ice, and moves down like a river into an inlet of Glacier Bay. Here the glacier ends in a great ice wall a mile and a half broad, and in places rising up more than two hundred feet vertically from the water's edge. From this ice-front great masses of ice continually break off with a loud report and float away as icebergs. We saw some, three or four hundred feet long, standing seventy or eighty feet out of the water, though usually, in the act of falling, the larger masses break up into smaller pieces.

Captain Carroll, of the steamship *Queen*, has sounded a depth of seven hundred and twenty feet just in front of this ice-wall; the ice, which undoubtedly reaches to the bottom, must therefore be nearly a thousand feet thick in the middle.

Our first work was to make a survey of the glacier in order to determine its size, the breadth and height of the ice front, the distance and height of the surrounding mountains, etc. Our instruments were supplied by the U. S. Coast and Geodetic Survey. We measured off a base line nearly two-thirds of a mile long on the west side of the inlet, and by triangulation established the positions of a number of prominent points. To these points we carried our plane-table and mapped in the neighboring mountains; fixing, at the same time, the positions of more distant points, to which the plane-table was then taken and the work continued. The mountains in the immediate neighborhood of Muir Glacier are not very high (only from six to seven thousand feet), but on account of their high latitude, and the large annual snowfall, they have all the appearance and characteristics of mountains of twice their altitude in the Swiss Alps. About fifty miles to the west tower the Fairweather group with at least two peaks over fifteen thousand feet high.

The motion of the ice interested us particularly. An expedition, which visited this glacier four years ago, reported that the motion was from sixty to seventy feet a day. The glacier, near its front, is broken up by deep crevasses into innumerable ridges and pinnacles of ice. It was by observing the positions of certain pinnacles, at intervals of several days, that the above result was obtained. All observations on other glaciers have shown motions much slower than this. The Mer de Glace, in Switzerland, moves but three feet a day. Fearing that an error might have arisen by mistaking one pinnacle for another, we determined to make strenuous efforts to force a way across the glacier and plant in the ice a set of black and red flags, whose positions could be accurately determined by our two transits, one placed on each side of the glacier. We were provided with ice-axes, such as are used by climbers in the Alps; and wherever there was any danger of an accident we were fastened together by a rope, so that if one slipped the others could hold him. We made trial after trial, now from the east side, now from the west side, of the glacier; and finally succeeded in setting out a satisfactory row of flags, though a short distance in the middle of the glacier defied all our efforts to cross it. The observations on the flags showed a motion of from eight to ten feet a day in the most rapidly moving portion of the ice. The great care we took to avoid all sources of error leaves no doubt that this result is substantially correct.

Muir Glacier shows many evidences that it is undergoing great changes. It is the objective point of excursions which take place every summer from Puget Sound. The captains of the steamers, who have visited it for several years, claim that they notice a recession of the ice front of a mile or more. Though probably true, this is somewhat indefinite, for they took no means to determine its position from time to time. We mapped in the ice front and fixed its position with respect to two cairns of stones which we made. If, in a few years from now, some one will again fix its position with respect to these same cairns, the rate of recession can be accurately calculated.

The moraines of Muir Glacier exhibit peculiarities which have not been observed elsewhere. About twelve miles back from the front of the ice is a broad valley, which forms a second outlet to the glacier. The glacier runs four or five miles down this valley and ends in a second ice-wall in a lake. A large moraine can be traced from the top of this ice-wall back over the glacier and down to the main ice front, without anywhere approaching the mountain side. A moraine with two ends and no apparent beginning is rather a puzzling phenomenon.

We made magnetic determinations, and also regular meteorological observations for about two months. The weather last summer was unusually fine for Alaska. However, one can hardly, with reason, complain of the bad weather when it does come, for it is to the large amount of precipitation that we owe the existence of the glaciers and the grand scenery of this region.

Educational Progress in Japan. By Dr. Emil Hausknecht, late Professor of Pedagogics at the Imperial University of Tokyo.

The new era in the history of Japan was inaugurated by the opening of a few treaty ports on the Japanese coast to foreign trade in 1854, and was further marked by the restoration of the Mikado in 1868, and the abolition of feudalism in 1871. Since then immense strides have been made towards an assimilation of the old Japanese-Chinese world to western civilization. The progress of western political, commercial, and industrial ideas in Japan has been astounding. There have also been some changes in social life; and in matters educational a somewhat slower, but nevertheless, remarkably steady advance must be recognized. A complete system of primary, secondary and university instruction has been developed. Primary instruction is imparted in the Elementary and Higher Elementary Schools, secondary instruction in the Ordinary Middle and in the Higher Middle Schools. In addition to these, there are several Commercial Schools in different parts of the country, and a Higher Commercial School in Tokyo. There are also Agricultural, Military and Naval Schools and Colleges, and there is in the vicinity of Tokyo a Veterinary College and a Forestry School of high standard.

Special attention has been paid to female education. There are two Higher Female Schools in Tokyo, in which very creditable work is already done. Great care is taken to teach European methods in the making of clothing, and in other forms of female manual labor, particularly in Tokyo and in Kyoto. There are furthermore a certain number of kindergartens and two schools for European art and music. Teachers—both men and women—are trained in normal schools. There is one Higher Normal School in Tokyo for the training of teachers for the Normal and Ordinary Middle Schools.

Japan, a country of thirty-six millions of inhabitants, possesses but one University, with about 700 students, the present Imperial University of Japan, which has sprung from several originally independent establishments. It comprises five faculties or colleges, those of law, medicine, engineering, literature, and science. The Engineering College, which for some time was under the direction of foreign professors, and the Medical College, rank comparatively high. In the Law College much attention is paid to political economy, and in the Literature College to the teaching of history, philosophy, and German literature. Through the impulse given by Dr. Riess, the German professor of history, a special historical department has been established in connection with the University, in which original investigations in Japanese history are conducted by an eminent Japanese professor. The scientific instruments and apparatus used in the Engineering, Science, and Medical Colleges, are of the best manufacture, and of latest European models. Recently there has been established in the University the so-called University Hall, which is intended to give students who have successfully gone through the college course an opportunity for more advanced work or for original research. Connected with the University is a Library, an Observatory, a Botanical Garden, a Marine Zoölogical Station, and several Hospitals. Some of the University buildings are built of brick and heated by steam. The students live in frame dormitories, which are lighted by electric lights. There are a few other institutions, which in their highest classes, approach or equal the standard of the Imperial University: as, *e. g.* the German Law School at Tokyo, and the Doshisha, a School at Kyoto supported by American missionaries. Recently an attempt has been made at conducting a private university with a limited number of courses.

The professors in the University are either Japanese who have been trained abroad, or foreigners (German, English, American, French, and Chinese). The Japanese professors employ the Japanese language, the foreigners generally their own language, with the exception of some of the German professors, who teach in English. In the Medical College the language used, in addition to Japanese, is German; in the Engineering, Science, and Literature Colleges, English, with the exception of the special German literature course, in which German is spoken. In the Law College there are three divisions: the English division for English law, the French division for French law, and the German division for German law. In the same manner, the Higher Middle School in Tokyo is divided into special language departments. There is a German division sub-divided into the German law division and the German medical division, for those scholars who, when entering the University, intend to study medicine or German law; there is an English division with a great many sub-divisions for the future students of the Science, Literature, or Engineering Colleges, and for the students of English law and political economy; and there is a French division for the future students of French law. It is evident that the language in which these scholars are particularly trained, somewhat affects their spirit and gives them a special propensity in favor of some foreign nation. Thus we see the young men who in the near future will constitute the intellectual leaders of Japan, brought up in three different camps.

The Higher Middle School, which in the Japanese school system immediately precedes the University, and is indeed its fitting school, is, according to the original conception, the continuation of the Ordinary Middle School. For practical reasons it has established preparatory classes of its own, also with several divisions, according to languages. Before entering these preparatory classes the pupils generally lose much time in passing successively through a number of private schools. There are a great many of these private schools in Tokyo, most of them without merit. In some of the worst the system of so-called "free students" prevails; that is to say, any student who pays an extra fee is at all times freed from the obligation of attending any of the courses chosen. Some of the best private schools in Tokyo are conducted by teachers of the Tokyo Higher Middle School. This school, as we have seen, is the preparatory school for the special University courses; so much so, that almost from the very beginning it sub-divides into special departments.

This premature drill for some special branch is the outcome of the peculiar circumstances of Japan which, in order to render possible and to fill the University, necessitated a too hasty mechanical training for the special University courses. It frequently involves the danger of preventing the pupils from acquiring a sufficient amount of thorough general knowledge and the all-round culture, which ought to precede the study of any special branch of knowledge. Indeed, a truly scientific standard can never be attained unless the spirit is strictly adhered to, which would found special attainments only on the basis of broad general knowledge. Moreover, the acquisition of broad general knowledge is particularly necessary for Japan in the present phase of her political development. Before the end of this year the first Japanese national parliament will have met. Will it be possible for the Government to secure a sufficient number of men with wide knowledge and broad views to comprehend its enlightened and far-reaching projects of reform? A great deal of elementary work which, but for the hours taken by the special subjects, might have been accomplished in the Higher Middle School, has to be mixed up with more advanced studies. In the Japanese University it is particularly the lack of acquaintance with a sufficient number of the modern European languages which greatly interferes with satisfactory progress in true university work. The Japanese Higher Middle School system, with its premature special courses, leaves no time for entering into what is at the present time most essential for Japan, viz: the very spirit of western civilization.

The difficulties which Japan, in introducing the western learning into her Middle Schools, had to meet and to surmount, were enormous. Not only the subject-matter, but also the methods of instruction were entirely new. The greatest difficulty was to obtain teachers for the new learning. The need being so great, men who had often nothing but a glimpse of some single part of western learning had to be employed as teachers. The fact that the new era demanded changes so numerous and so complete, that the demand for western learning sprang up so rapidly, so unexpectedly, and so generally, had several drawbacks. The sudden desire for an adoption of the western civilization involved a break with tradition. Tradition being an important factor in education and social life, has always to be handled with particular delicacy and respect. The belief in a great many ideas which had before been considered sacred and venerable, began to be shaken. Whereas, under the old regime, teachers embraced more or less the whole range of Sinico-Japanese knowledge, the teachers of the new era, as it has been impossible for them to acquire in the brief space of time a thorough knowledge of western learning, generally know only the one subject which they have to teach, better than their pupils, whilst in the other subjects of western learning the pupils are generally far ahead of them. Petitions of a whole body of pupils peremptorily asking the removal of such and such a teacher from their school, and strikes of pupils organized to enforce their will, are not unusual. Thus we see a great number of the young generation of the better classes in Japan growing up without true notions of authority and of submission. This indeed is a most deplorable state of affairs, both from a social and a political point of view.

However deficient the knowledge of the present generation of Japanese pupils in western learning, there is—as has been pointed out above—a decided and steady progress to be noticed.

In a reorganized plan for the curriculum of a Japanese Middle School which I was asked to prepare, I have tried to initiate the Japanese—as far as this can be done by school instruction—into the true spirit of western thought. A translation of a passage from this plan may be here given:

"The course of instruction is intended to bring about *an amalgamation of Japanese-Chinese culture with the ideas of Western Civilization,* and proposes to bridge the mental abyss which still exists between Japanese and Europeans in their mode of feeling and thinking; the aim is to solve the problem of leading the pupils into the European range of thought, into the moral principles on which their law is based, and into the ethical views of life entertained by them; in short, into the spirit of western civilization.

"The Western or European Civilization is mainly a Romance-Germanic Civilization, which may be divided into three groups.

a) The French branch of culture, *b*) The German branch of culture, *c*) The English branch of culture.

"The best introduction into the true spirit of these three forms of culture is by means of learning the respective languages. * * * *

"Each one of these three groups forming the Romance-Germanic Civilization comprises four elements:

α) The characteristic-popular element, β) The Jewish-oriental element, γ) The old classic (Greek-Roman) element, δ) The Christian element.

"The principal object of the course of instruction is to lead the pupil into the spirit of the first three of the above-named four elements of French, German and English culture, by the following means:

"Partly by instruction in history, partly through the reading matter laid before the pupil in the study of the foreign languages, and partly through lessons in universal literature, in the Introduction to the history of art, and in drawing.

"To the fourth element, Christianity, attention is given not only by way of historical instruction, but especially in the course of ethics, in such a measure that the pupil obtains an insight into the historic importance and the civilizing effects of Christianity, to the influence of which all the civilized western nations owe their mental superiority over the other people of the globe."

To raise the standard of the University, I aimed at an elimination of the elementary studies which until now impeded true University work; these elementary studies were placed on the curriculum of the Middle School, which was at the same time relieved from premature specialization. The former three-fold division (English, German, French) was made to yield to one uniform course for every student. The endless variety of preparatory schools was reduced to two, viz: the Elementary School and the New Lyceum; the latter provides for an organically constructed course of studies extending over ten years. The student will now come to the University not only better prepared than formerly, and with a sufficient knowledge of three European languages, but also at a considerably earlier age.

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Thus we see education in a steady progress in Japan. The many deficiencies and drawbacks which the hasty introduction of western learning has brought about, are the natural outgrowth of the circumstances. However deficient, the system of western learning employed until now has done good work, but it has outgrown itself with the advanced state of western learning which the Japanese have now acquired. The fact that not only is the government aware both of the importance of education and of the deficiencies of the present system, but that so illustrious a body as the Gakushu Kwai in, that imitation of the Académie Française in Tokyo, has given its attention to the educational question, justify the hope that the steady progress made hitherto will be continued in the future.

There was a second meeting of the Club on October 17. Addresses were made by Dr. G. H. Williams, Dr. W. B. Clark, and President Slocum of Colorado College.

On a Geological Excursion in the Northern Appalachian Chain.

By Dr. G. H. Williams.

Dr. G. H. Williams made some remarks on a geological reconnoissance trip which he took through the crystalline regions of eastern Pennsylvania, northern New Jersey, New York, western New England and Canada, in company with Profs. Raphael Pumpelly and C. R. Van Hise of the U. S. Geological Survey, during the months of July and August, 1890.

The broad belt of highly crystalline rocks which embraces the greater part of New England, and extends thence southwestward along the eastern flanks of the Appalachians to Georgia, in spite of having been for a long time the subject of study and speculation by geologists, is perhaps as little understood as any portion of our continent. It is extremely complex in structure and varied in composition, but the paucity of information regarding its real origin and nature has heretofore made it necessary to represent it on geological maps by a single color. Realizing that the intricacies of such a region can only be unraveled by very patient and detailed work, the U. S. Geological Survey has inaugurated its examination at three widely separated localities. One of these is in North Carolina, where the belt is widest; the second is in Maryland; and the third in northwestern Massachusetts and Vermont. It is in the New England area that the most has been accomplished. This work is directed by Prof. Pumpelly, who is assisted by Profs. Emerson of Amherst, Wolff of Harvard, Hobbs of Madison, and Dale of the U. S. Geological Survey.

Starting with Greylock and the Hoosac Mt. near Williamstown, Mass., these gentlemen have extended their operations northward, eastward and southward. They have already brought much order out of the chaos into which the repeated disturbances have thrown the strata, while their work promises even more important results for the future. Perhaps their most valuable generalization is the complete confirmation of the earlier conclusion of Dana, obtained by his work in the same region, that a large portion of the highly crystalline rocks of New England are not pre-fossiliferous, but on the contrary are extensively metamorphosed and recrystallized palaeozoic sediments, which were once identical in character, as well as in age, with the richly fossiliferous and undisturbed beds of central New York. This work, in connection with the brilliant palaeontological discoveries of Walcott, has finally settled the famous Taconic controversy, which, since the days of Eaton and Emmons, has been more actively discussed than any in American geology. The results obtained by Pumpelly, Wolff and Dale, in northwestern Massachusetts, will appear in a monograph soon to be published by the U. S. Geological Survey.

The particular purpose of the trip above referred to was to enable Prof. Van Hise, who is in charge of the survey work on the crystalline rocks of the Northwest, and myself to see Prof. Pumpelly's field under his own personal guidance, as well as to make a hasty examination of analogous formations to the south and north of it.

For this purpose a start was made at Philadelphia, and the crystalline belt traced thence through New Jersey. Here much of interest was seen under the guidance of Mr. F. L. Nason of the Geological Survey of New Jersey (formerly a student at this University), who has discovered relations between the fossiliferous blue, and the crystalline white limestones containing chondrodite, graphite, zincite, etc., which may ultimately prove them to be of the same age.

Continuing the trip northward from New York, a section was made along the crystalline rocks exposed by the Hudson River in its intersection of the Highlands between Tompkins Cove and Cornwall. Thence via Albany the route was extended to North Adams, Mass., where several days were spent in examining the structure of the Hoosac Mountain. This was traced southward as far as Pittsfield, before its northern continuation was visited in the Green Mountains near Rutland, Vt. This is now one of the principal fields of operations for Prof. Pumpelly's division of the survey; and important discoveries of fossils have been made there during the past summer which tend to throw light upon the age and relationships of the great marble belt of the State.

From New England a return was made to New York State for the purpose of examining the rocks of the Adirondack wilderness. This was skirted on the east, north and south, and finally two trips were made from the periphery to the centre of the area. Little could be done in the short time at command in the way of really deciphering the structure of this geologically unexplored region, but many observations seemed to point to its being a great mass of eruptive rock (gabbro or norite) which had broken through, raised and metamorphosed the surrounding rocks. This is indicated by the character of the surrounding rocks themselves; by their being everywhere traversed by dykes and apophyses of the central rock; by distinct zones of alteration at the point of contact, as observed on Bonaparte Lake; and by the fact that the strike of the surrounding rocks is prevailingly parallel to their line of contact with the central mass all around the area. The petrographical character of the central rock itself is also strongly in favor of its eruptive origin.

Finally the excursion was terminated by a visit to the metamorphosed and stretched conglomerates, belonging to the so-called "Hastings Series," described by Mr. H. G. Vennor of the Canadian Geological Survey in the Annual Report for 1876–77, p. 250 *et seq.* This is situated in the province of Ontario, north of Lake Ontario. We proceeded from Kingston to Belleville on Lake Ontario, and thence northward to the village of Madoc, where these rocks are described as being exposed in their most typical development. They were found to fully equal the descriptions given of them, and the admirable exposures exhibit most instructive examples of the effects which the mountain-making forces are capable of producing on rigid and even brittle material. The pebbles and boulders of hardest rocks, enclosed in very ancient conglomerates, were found not merely distorted, but drawn out and compressed as though under the enormous pressure they had been made to "flow," as it were, and thus accommodate themselves to the strain. Many interesting specimens of these rocks were collected, some of which were exhibited to the Club.

The Geological Features of Gay Head, Mass. By WM. B. CLARK.

Dr. Clark spoke concerning the points of interest to be found at Gay Head, Martha's Vineyard, where he was stationed a part of the last summer in charge of a division of the work of the Harvard Summer School of Geology.

The establishment of the Harvard Summer School of Geology dates back about twenty years when Prof. N. S. Shaler, the present director of the school, instituted a system of summer instruction in field geology. At first the entire work was under his own personal guidance but latterly he has had associated with him the other members of the teaching staff of the Geological Department at Harvard as well as a few instructors from other institutions. The session of the school during the past summer extended from July 15th to September 15th, and about two weeks were passed in each of the four following localities: 1. Central New York, with headquarters at Utica; 2. Catskill Mountains and Hudson Valley; 3. Connecticut River Valley, with headquarters at Meriden, Conn.; 4. Martha's Vineyard, with headquarters at Gay Head. This selection of localities gave the students an opportunity to see something of the strata of the four chief divisions of the geological column (1. Archæan, 2. Palæozoic, 3. Mesozoic, 4. Cenozoic), together with a series of interesting eruptive rocks.

A typical section of the New York palæozoic was examined under the direction of Prof. H. S. Williams of Cornell University, while investigations were carried on upon the mesozoic of the Connecticut Valley under the guidance of Prof. Davis of Harvard. At Martha's Vineyard the tertiary sands and clays afforded the students an opportunity to see the best section of the cenozoic on the coast of New England, and on account of his work upon similar deposits in Maryland and Virginia Dr. Clark was asked to direct the class while engaged in study at that point.

The speaker stated that the islands of Martha's Vineyard and Nantucket are isolated portions of the great Coastal Plain that borders the Atlantic. This plain in the south is of great width, reaching in Georgia quite two hundred miles from the sea, but gradually narrows northward, until along the New England Coast it is only represented in Long Island, Martha's Vineyard, Nantucket, Cape Cod and a few smaller patches of land that, either as islands or promontories, jut out into the sea.

Unlike that portion of the Coastal Plain, extending from New Jersey southward, where the deposits lie very nearly horizontal, the strata of Martha's Vineyard have been subjected to mountain-building processes, and as a result the beds are upturned at a high angle. The same deposits are constantly repeated, showing them to be portions of great folds, the tops of which have been denuded. The strata thus disturbed have been referred to the cretaceous and tertiary periods. Upon this region, whose relief had been already well outlined in pre-glacial times, the surface covering of drift, that determines the details of the present topography, was deposited during the glacial period.

The island of Martha's Vineyard is situated near the border of the *terminal moraine* that marks the most forward advance of the ice-sheet during the glacial period and presents accordingly the types of deposits dependent thereon.

The beds below the drift covering do not show the marked fossiliferous character of the cretaceo-tertiary series to the south. Casts of mollusks and leaf impressions are the most important fossil remains. They are so obscure in the main as to afford rather indecisive evidence as to the geological horizons represented. The faunal differences shown in the fossil forms, as compared with the species described from New Jersey and Maryland, may be largely accounted for, no doubt, from the varied conditions, due to their more northern habitat.

The most striking object to the tourist is the marvelous coloring of the clays and sands of which the cliffs are formed. The most vivid shades of red and yellow, mingled with green, black and white, arrest the eye. There are few spots in the world that can be compared with Gay Head in this respect. The walls of the Yellowstone Cañon and the famous bluffs at Alum Bay, Isle of Wight, are not more wonderful. The clays are used for modeling purposes, and pretty ornaments showing the various colors of the bluff are offered for sale at numerous points on the island.

The Indian reservation at Gay Head presents much of interest. The Gay Head Indians, who, since the days of the early settlement of the country, have been friendly to the white man, are an industrious and cleanly people. Although one observes much that betokens the Indian type, the admixture of negro and white blood has materially changed them. A few years ago the Indians were admitted to citizenship, and one of the tribe was elected to the General Assembly of Massachusetts. The women far surpass the men in intelligence and thrift.

The Indians earn a livelihood by agriculture, fishing, and as caterers to the tourists who visit Gay Head. Their little restaurants are scrupulously clean and very inviting places where simple but good meals can be obtained. The number now on the reservation is not far from one hundred and fifty. Many, however, have sought homes for themselves elsewhere.

The deaf and dumb colony in the Gay Head region is also deserving of mention. Prof. Graham Bell and others have given this community much careful study.

The Gay Head region is still little frequented, except by the day tourists who are landed from the numerous excursion boats.

At the meeting of October 17, President SLOCUM of Colorado College also made a brief address.

He spoke of the irrigation schemes that have been introduced in the southeastern part of New Mexico, and particularly of the utilization of the Pecos River for the purposes of irrigation.

A fourth meeting of the Club was held on October 20.

Professor JAMES BRYCE, M. P., who was making a short visit to Baltimore, met in an informal way the students in History and Politics and other members of the Club.

Brief addresses were made by Professor Bryce, President Gilman, and Professor H. B. Adams.

A fifth meeting of the Club was held on November 10.

The principal address was by Passed Assistant Engineer ROBERT G. DENIG, U. S. N., on "A Trip to Persepolis." Engineer Denig is at present on duty at the Naval Academy. He is one of the four officers who were saved from the wreck of the Huron in 1877.

He described a mule-back trip from Bushire to Persepolis, which he made in the company of a number of naval officers in November, 1886.

Dr. Christopher Johnston, Jr., prefaced Mr. Denig's address by a brief account of the history of Persepolis.

SCIENTIFIC NOTES.

Literary Frauds among the Ancients. By A. Gudeman.

(Abstract of a paper read before the *University Philological Association*, October 17, 1890.)

Our knowledge of the intellectual, social and political life of the Greeks and Romans, in all its manifold phases, rests almost entirely upon the information handed down to us in *written* records. But as these, for obvious reasons, do not possess the many elements of intrinsic authenticity which naturally belong e. g., to ancient ruins and inscriptions, the accuracy and impartiality of our judgment concerning ancient life and thought will be very seriously influenced by the individual trustworthiness and general reliability of those written sources to which we owe our information.

Of all the obstacles, however, thus thrown into the path of the philologist, in his attempt faithfully to reconstruct the history of the past, none are, perhaps, productive of greater perplexity and error, than those arising out of the apocryphal nature of so many works of Greek and Roman literature.

The author's treatise, it is scarcely necessary to say, makes no pretensions to exhaustiveness, not to mention the impossibility of doing anything like adequate justice to the subject within the narrow limits of a paper.

Apparently, the earliest example of a literary forgery dates back as far as the sixth century, for, according to Herodotus (VII, 6), *Onomacritus* was banished from Athens for forging certain oracles which he ascribed to *Musaeus*. In later writers, the same individual figures prominently as the author of a work on "Religious Rites" (Τελεταί), which the poet *Aristophanes* (Ran. 1032) attributes to Orpheus. The Thracian bard seems in fact, to have become identified, at an early date, with certain religious theories, but when Orpheus, the theologian, had once risen to the rank of an author as well, it soon became customary to affix his illustrious name to all treatises that dealt with speculations of a theosophic description, a practice carried on long after the beginning of our era. Some of the more important of these clumsy forgeries were briefly discussed, with special reference to the numerous anachronisms in which they abound.[1]

The first to suspect their spuriousness seems to have been *Aristotle* (de anima, I, 5, 410, b 27) and as his commentator Philoponus informs us, he even went so far (in his lost dialogue on Philosophy) as to question the historical existence of Orpheus himself.[2]

The classical period of Greek literature is practically free from literary frauds. The reasons for this (which were given at some length) may briefly be summarized by saying that this epoch marked the culmination of the creative faculty of the Greek intellect, and in consequence all the great literary masterpieces of the period are characterized by originality of thought and expression, each author exhibiting an individuality quite his own. And if we add, that the only channel of publicity was a vast *listening* public, an audience in the literal meaning of the term, the natural obstacles in the way of a successful perpetration of literary fraud will be seen to have been well nigh insurmountable. In a word, such frauds cannot thrive in an era of intellectual productivity. It is not till a reading public had arisen in Greece that this practice found favorable conditions of growth.

At first, literary frauds appeared in the more modest guise of interpolations, and perhaps the best illustration of this is furnished by the wholesale tampering with the texts of the three Attic dramatists, an abuse which Lycurgus attempted to check, by providing for an official text, from which no actor was allowed to depart on penalty of losing his licence to act on an Athenian stage.[3]

If the classical epoch of Greek literature was singularly free from literary frauds, the period subsequent to the times of Aristotle may be said to have made ample amends for this deficiency. The causes which brought about this change were then discussed at length, but only a brief summary of them can be given here. The death of Alexander, of Aristotle and of Demosthenes, occurring almost at the same time, marks as emphatically the end of the great productive period of Greek genius, as it does that of the political independence of Hellas. It was followed by an age of research and scholarship, and keen curiosity—always a late growth—regarding the biography and the works of the great writers of the past was excited on all sides. Under the influence of this curiosity, it is not difficult to understand that anecdote and fable frequently usurped the place of truth and fact no longer ascertainable, and that individuals of talent felt called upon to fill up such gaps, as had been found to exist, by productions of their own, a state of mind very analogous to that which produced the phenomenon of so-called pious frauds.

One of the most interesting of these forgeries was that committed by *Heracleides Ponticus* (Diog. Laert. V, 92) who attributed to *Thespis* a number of dramas of his own composition. After discussing this forgery at some length, the author touched more briefly upon a large number of equally apocryphal writings, of which only a few can be enumerated in this place.[1] The very interesting forgery perpetrated by *Anaximenes* of Lampsacus is next taken up. It enjoys the distinction of being the only literary fraud on record, prompted by a motive of pure malice, having been designed to blast the reputation of the celebrated historian *Theopompus*. The work contained a savage attack upon Athens, Sparta and Thebes, making these cities individually responsible for all the misfortunes that ever visited Hellas.[2] The vituperative language of the book could not easily have excited suspicion, for, according to the unanimous verdict of antiquity, Theopompus' writings possessed the same acrimonious character[3] and if we add that Anaximenes reproduced the style of the historian with singular felicity, the general belief in the authenticity of the work is not surprising. The really surprising thing, at least to a modern mind, is the fact that the style of an ancient author can have possessed an individuality, so definite and concrete as to render it capable of exact reproduction. In order to show this, the author pointed out at length that the ancient writer, unlike the modern in this respect, looked upon form and matter as standing upon a basis of absolute equality as regards the painstaking care which he bestowed upon their elaboration, so that well recognizable types of style were created, which would accurately reflect distinctive modes of thought.[4]

But while the writings hitherto discussed were undoubtedly supposititious, it would be a serious mistake to imagine that all literary productions which may be found sailing under false colors can with equal justice be classed under the head of literary frauds, properly so called. This is notably not the case with that large class of poems invariably ascribed to Homer up to the days of the Alexandrian grammarians.[5] The same is true of Hesiod. To these two masters of epic song was gradually attributed every species of epic composition, a process greatly facilitated by the circumstance that most of the earlier epics were undoubtedly ἀδέσποτα.

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[1] On the subject of Orphic literature, cf. the famous work of Lobeck, Aglaophamus.

[2] *Cicero* probably had this very passage in mind in his De nat. deor. I, 38, 107. "*Orpheum poetam docet A. numquom fuisse.*" The long list of authors of Orphic treatises given by *Suidas*, was shown to be more or less due to guess work.

[3] Cf. Ps. Plut. Vitae X, orat. p. 841e. The author collected all the examples of interpolations in the tragedians expressly designated as such in ancient sources. *Galen's* statement in regard to the works of *Hippocrates*, the spurious documents in *Dem. de corona*, the interpolations in *Lycophron's Alexandra*, 1228-1280, 1446-1450, and especially the story of the discovery of *Aristotle's* works and their subsequent edition by *Andronicus* (Strabo, XIII, p. 608, Plut. Sulla, 26) were also discussed, the three last instances more in detail.

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[1] *Ps. Epicharmus* (Athen. XIV, 638, Suidas s. v. Ἐπίχαρμος, Anon. περὶ κωμῳδίας III), *Chionides* and *Magnes* (Athen. IV 137e IX 367f. XIV 638e) *Susarion* (Anon. l. c), *the earlier Greek historians* (Dionys. de Thucyd. 23 Athen. XII, 515 Suidas s. v. Ἀκουσίλαος), *Sappho* (Athen. XIII 599d), speeches of *Pericles* (quoted as genuine by Cic. Brut. 7 de orat. II 23, but refuted by Quint. XII 2, 22; 10, 49) *Aristophanes'* Ποίησις, Ναυαγὸς, Νῆσοι, Νίοβος (vita Arist. XI, 85 Düb.). It is also interesting to note the different modes of designating suppositions productions e. g. νοθεύειν (cf. Lobeck l. c. p. 389), νόθα, ὡς νόθους παραγράφειν, ἀντιλέγειν, εἰ γνήσιον, οὐκ εἶναι cum gen., τὰ εἰς—ἀναφερόμενα, ὁ τὰ εἰς—ἀναφερόμενα ποιήσας, ψευδεπιχάρμεια, ψευδεπίγραφα, etc.

[2] *Paus VI, 18, 5.*—The title was Τρικάρανος or Τριπολιτικὸς cf. Luc. Pseudol. 29, Varro Sat. Menip. p. 232 R. Ios. c. Ap. I, 24, Aristeides, Romae encomium, p. 211, I.

[3] cf. Polyb. VIII 12 Dionys. Ep. ad Pomp. 6, 8, Nepos, Alcib. 11 Joseph. c. Ap. l. c. Plut. Lys. 30 de Herod. malign. p. 855, Athen. VI 254b, Lucian de hist. conscrib. 59, Clem. Alex. Στρωμ. I 116, Suidas s. v. Ἔφορος.

[4] This is further illustrated by the keen appreciation for rhythmical niceties of diction on the part of the ancients. They read with their ears no less than with their eyes. cf. *Demosthenes'* avoidance of the concurrence of three short syllables, *Isocrates* intolerance of the hiatus. Cf. also Arist. Rhet. III 8, Cic. Orat. 53, 214; 57, 91 Quint. IX 4, 61. 87, and many others.

[5] Cf. e. g. *Pindar* ap. Aelian V. H. IX 15, *Thucyd.* III 104, *Arist.* Av. 575. Aeschylus too regarded Homer as the author of more poems than the Iliad and the Odyssey, if it be true that he pronounced his tragedies to be but τεμάχη τῶν Ὁμήρου μεγάλων δείπνων (Athen. VIII p. 347 e). *Herodotus* (II 117) constitutes a famous exception.

Anonymity of authorship constitutes, in fact, a perpetual source of error and confusion, in that it is apt to lead to an assumption of literary fraud where fraud is, in reality, out of the question. Thus the Alexandrian critics frequently incorporated anonymous treatises into the collections of the works of well-known writers, if a real and fancied resemblance in style, treatment or subject-matter warranted them in doing so. A number of such ψευδεπίγραφα[1] were enumerated and discussed.

An equally fruitful source of confusion is found in the existence of so many writers of the same name, such as Dionysius, Apollonius, Apollodorus Alexander and Demetrius[2] (about 100!).

There is still another class of undoubtedly supposititious writings which cannot properly be accounted for on the assumption of literary fraud or justly attributed to either anonymity or homonymity.[3] Namely the large number of "pseudepigrapha" in the collections of the great Attic orators.[4] The author endeavors to explain their existence on the hypothesis, that the majority of the apocryphal orations were originally nothing but μελέται, which some shrewd Athenian bookseller collected and published in an edition (of Lysias, for example) which would naturally command a higher price than the less complete editions in the market (cf. e. g. Aristotle ap. Dionys. de Isoc. 8). Having thus eliminated a number of works which cannot properly be regarded as literary frauds, the author proceeded to discuss the literary forgeries committed during the *Alexandrian* period, in comparison with which, both in point of number and audacity, the examples hitherto noticed are insignificant. This fact it apparently due to an entirely new incentive to the practise of such frauds, in the large pecuniary rewards offered by the Ptolemies for copies of celebrated works, as we learn from two well-known passages in *Galen* (XV 105. 109 K.) and *Ammonius* in his commentary to the Categories of Aristotle. *Aristotle*, *Hippocrates* and perhaps *Plato* seem to have fared the worst at the hands of these forgers. After dwelling upon some of the writings fathered upon them probably at this time, the writer continues his survey by treating of the forgeries of *Aristobulus*, *Pseudo-Phocylidea*[5] and a few others. *Pseudo-Pythagorean* literature is then taken up and the causes that may be regarded as responsible for its existence pointed out.[6]

It is in the department of *epistolary composition* that literary frauds reach their culmination. There is in fact scarcely an illustrious individual in Greek literature or history, from Themistocles down to Demosthenes, who was not credited with a more or less extensive correspondence. Such wholesale forgeries were, of course, greatly facilitated by the very nature of epistolary composition. For in a letter, cogency of reasoning and rhetorical finish are in no sense prerequisite qualities; on the contrary, an easy *abandon*, variety or multiplicity of topics, and a greater stylistic freedom in their treatment, constitute some of the characteristic features of all confidential communications. All that the forger had to do, therefore, if he desired to have his fictitious correspondence pass for genuine, was to keep, as far as possible, within the boundaries of biographical accuracy and historical probability. There are few, if any, Greek letters extant that can be said to bear the impress of intrinsic authenticity, for we have good reasons for believing that the custom of employing a letter as a vehicle for confidential communications did not come into general use before the time of *Aristotle*. Moreover, it is highly improbable that the letters themselves should have been been carefully preserved for publication, not to mention that very nearly all the epistles that have come down to us bear internal evidence of their spuriousness.[7] Of *Aristotle* the ancients possessed a voluminous collection of letters in twenty books, or, according to another account, in eight. How many of these were genuine, it is impossible to say; the six letters which have come down to us, however, are very clumsy forgeries (cf. Stahr. Arist. II, 167 sqq). The author closes his survey by a brief examination of the famous letters ascribed to *Plato*, all of which he regards as wholly spurious.[1]

In another paper, the writer will discuss the subject of apocryphal writings in *Roman Literature*, without which a history of Literary Frauds among the Ancients is necessarily incomplete.

Style and Chronology in Corneille. By F. M. WARREN.

(Abstract of a paper in the *American Journal of Philology*, Vol. XI, No. 2).

The object of this paper was to test a method much debated by students of ancient literature, the statistical method, which seeks to determine the genuineness and the approximate chronological order of an author's works by his style and the changes it may undergo. A previous study of Corneille by the writer (in his Johns Hopkins' dissertation for 1887) had convinced him that in the dramatist's works the successive phases of contemporaneous popular thought and sentiment could be easily traced. It was therefore probable that they reflected also the linguistic evolution of his time and its changes in style.

The materials to confirm or refute this view lay at hand, both in a comparison of the successive plays with one another and, which is more conclusive, in Corneille's habit of revising frequently his language and verse in succeeding editions of the same play. These editions being dated we have thus a series of variants which determine accurately the very year when the changes seemed unavoidable to their editor (the variants are collated in the Hachette edition of the series, *Les Grands Ecrivains*). A means of verifying the results thus obtained is offered by an outside and independent authority, the grammarian Vaugelas, whose *Remarques sur la langue française* appeared at the height of Corneille's literary fame.

To simplify the work, the material presented in the variants of the same play was alone used, being also the strongest argument in favor of the method. This material was arranged under the following heads and Vaugelas was cited when in point: (a) Changes in orthography in the revisions; (b) Antiquated words replaced by more modern; (c) Changes in gender; (d) Changes arising from a more rigid definition and differentiation of words and phrases; (e) Constructions which became obsolete; (f) Changes in the mood and tense of verbs; (g) The use of the negative; (h) The order of the verb and its pronominal object; (i) Improvements in versification.

Each and all of these groupings seemed to lead to the conclusion that the statistical method can be safely applied to Corneille and therefore, by inference, to any writer of modern or ancient times. It is necessary however to point out that a traditional academic style may rule writers of minor talent in succeeding literary periods and thus their works might afford but little material for comparison. Yet it is presumable that the ancient authors whose writings have been preserved represent the highest talent of their time and therefore create and perfect their own literary standard in their successive productions.

Note on a Coptic Inscription in the Cohen Collection of Egyptian Antiquities. By C. ADLER and W. M. MUELLER.

[Reprinted from the *Proceedings of the American Oriental Society*, May, 1890].

In 1884 the Johns Hopkins University came into the possession of a valuable collection of Egyptian antiquities, numbering some 680 objects, the collection of the late Col. Mendes I. Cohen, of Baltimore. These objects were gathered mostly during travels in Egypt in 1832: a part, however, being acquired at a sale in London in 1835.[1]

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[1] e. g. *Pind.* Ol. V. *Xenoph.* de rep. Athen. *Eurip.* Rhesos. *Eurip.* (Critias), *Stesichorus* (Ibycus-Athen. IV 172) Pseudo-Democritus' Φυσικὰ, Aristotle's Τέχνη (Anaximenes), etc.

[2] *Demetrius Magnes*, a contemporary of Cicero wrote a voluminous and accurate work entitled Περὶ ὁμωνύμων ποιητῶν καὶ συγγραφέων (Diog. Laert. V, 3) Dionys. Din. c. 1 cf. Maass, de biographis Graecis, (Phil. Unters. III, p. 23 sqq). The loss of few books is more to be deplored than the loss of this. Pseudo-Demetrius Phalereus—περὶ ἑρμηνείας (cf. Diog. Laert. V 84), Pseudo-Heraclides περὶ νόμων (?) and many others were cited as illustrations.

[3] *Pseudonyms* are rarely met with in ancient literature and when they do occur as in the case of *Aristophanes* (Callistratus, Philonides, Araros) or *Xenophon* (Themistogenes cf. Memerab. III 1, 2) the author's real name was apparently an open secret, cf. Plut. de glor. Athen. 1, p. 345.

[4] Dionys. de Lys c. 17, Caecilius apud Ps. Plut. vitae X orat., p. 836, Photius p. 448, b.

[5] Valckenaer, Diatribe de Aristobulo, 1806. Bernays, Das phokylideische Gedicht, Berlin, 1856. A. Scheck. De fontibus Clem. Alex. Progr. Augustani ad St. Stephani c. III. VI. (1889).

[6] Cf. on this subject *Zeller*, Gesch. der Griech. Philos, I, p. 254 sqq., and especially, *Diels*, Archiv f. Gesch. der Phil. III 3.

[7] The writer enumerated as accurately as possible all ancient letters of whose existence we have any knowledge, so far as they may be safely regarded as apocryphal. The letters of Alciphron and similar examples of epistolary composition were designedly excluded from the list, for obvious reasons. *Apollonides* περὶ κατεψευσμένης ἱστορίας (vita Arati I)—the only ancient work on Literary Frauds that has come under the observation of the writer, seems also to have treated of this branch of apocryphal literature, as he ascribes the letters of Euripides, to one Sabirius Pollio. Of modern literature on the subject, it is sufficient to refer to Bentley's immortal Dissertations on the Epistles of Phalaris.

[1] The numerous ψευδεπίγραφα in *Plutarch* and *Lucian* were omitted, as an adequate discussion of them would have been quite impossible, within the narrow compass of a paper.

The collection contains among other interesting objects, an unpublished Coptic inscription. Considering the eagerness with which every fragment in Coptic, whether on stone or papyrus, is sought in Europe, any new Coptic inscription is worthy of study. Up to the present time, we believe, no Coptic text has been published in America, so that the Johns Hopkins Coptic text will hold a unique position. Besides, it seems to fill up a gap in our knowledge of the Coptic versions of the Old Testament.

The inscription is written on a rectangular board 4½ by 13¼ in., marked "Tablet from Thebes, No. 645." The left side of the board is repaired, and its upper part pierced by four nails. It is uncertain what conclusions should be drawn from this fact concerning the history of the object. We are inclined to think that some Coptic monks took the board from a broken mummy case lying in the necropolis of Thebes. There is a stain of asphalt over the first *r* of the third line. This is apparently later than the inscription, and it is not unlikely that it proceeded from some antiquities with which the board was packed. The board was painted white. The characters are carefully formed and distinct. The handwriting is probably not earlier than the Arabic dominion.

The inscription consists of Psalm ii., verses 3–5, following very closely the text of the Septuagint, but containing interesting variants compared with the Bohîric or Lower Egyptian text. The latter is known in the editions of Tuki (1744), Ideler (1837), Schwartze (1843), and Lagarde (1875). Our fragment belongs to the far more ancient and valuable Sahidic or Upper Egyptian version, of which no complete edition of the Psalms has yet been published. These verses are not contained in Peyron's *Psalterii Copto-Thebani specimen* (Augustæ Taurinorum, 1875); Lagarde's *Psalterium*, which contains some additional fragments, is not accessible to us: but, even if it be complete in this passage, the value of our strange source would not be very much diminished.

The text is as follows: Line 1. ✠ *marn sôlp nneumrre*[1] *ntnnoudje*[2] *mpeuna(ḥb)*[3] *e;* Line 2. *bol hidjôn petouĉḥ*[4] *ḥnupêue nasôbe;* Line 3. *m(m)ôo(u)*[5] *auô pdjoeis nakomšou*[6] *tote;* Line 4. *fnašadje nmmau hnteforgĉ*[7] *nfštrtôrou hmpefg'ônt.*

[Notes to the text: [1] Boh. *nnousnauh* τοὺς δεσμοὺς αὐτῶν. [2] Boh. *hiou* ἀπορρίπτειν. [3] 'yoke' ζυγόν must be *nahb* (Boh. *mpoukenahbef* 'also their yoke') although the space left for *hb* is very small. [4] ὁ κατοικῶν is translated more literally than Bohîric *peθšop* 'who *is*.' [5] This form is remarkable because it is peculiar to the dialect of Lower Egypt. It is not favorable to the age of the fragment. [6] 'Sneer, laugh at' is a weaker translation than the drastic Greek word ἐκμυκτηρίζειν or *elkšai n-* (lit. 'contrahere nasum post') of the younger translation. [7] The Greek word ὀργή imitated, while the Bohîric version uses as second synonym *embon.*]

The other variants are unimportant. The handwriting does not permit us to take these verses as the calligraphic exercise of a young scholar. That beginning and end are complete is proved by the beginning cross and the form of the last letter. It would be easy to offer conjectures as to the reason which caused the selection of these words, but we will not attempt it here.

Translation of Some Arabic Medical Prescriptions of the End of the Fifteenth Century.

(The originals are appended to the Williams Syriac Manuscript, published by the Johns Hopkins University, 1886).

(Reprinted from *The Medical News*, September 13, 1890.)

To the Editor of THE MEDICAL NEWS.

SIR: Oriental medicine in the post-mediæval period has received so little attention in the study of the history of medicine, and the materials for research are so scanty, that I venture to think the recipes below may be of interest. They are written on the fly-leaves of the *Williams Codex*, the property of Mr. Robert S. Williams, of Utica, N. Y., and the subject of elaborate prolegomena by Dr. Isaac H. Hall, published by the Johns Hopkins University, in 1886, with *fac-similes* of the Syrian Antilegomena epistles which it contains. The translations of the prescriptions given below are, however, by Dr. Van Dyke, of Beirut, Syria. The extracts date, in all probability, from about 1471, the MSS. being dated July 4, 1471, and the prescriptions, in Arabic, being written at about the same time, and in Mesopotamia, probably near Husn Keifa. I dare say, most European physicians at the time would have deemed them useful, as they antedate Paracelsus and are contemporary with Campegius. "Steeped water of fresh glass" is of course a periphrasis for distilled water, and the day is still, I believe, in the future when the necessity for this precaution will be both accepted and acted upon by all our own apothecaries.

TALCOTT WILLIAMS.

Recipe for the Philosopher's Electuary—they also call it "The Matter of Life." "It is useful in excess of phlegm, and strengthens the soul, and rejoices, and digests, and eructates, and appetizes, and increases the capacity to commit to memory and to remember, and acuteness of intellect, and loosens the tongue, and removes indigestions, and stops 'stillicidium urinæ,' and quiets flatulencies, and increases the seminal fluid, and strengthens the penis, and makes firm the teeth, and removes pains in the joints and back. It is made of pepper and long pepper, and myrobolans and Myrobolans Bellerica, and Amyros Zeilanica, and Aristolochia (roots), rolled, and male orchis, and twigs of chamomile, and heart of pine seeds (and) citron. To be pounded and sifted and moistened like other electuaries. The dose of it is about the size of a walnut, and God is the healer of all pains."

A trial of dentifrice composed of fennel (?). (Reading doubtful. The lines apparently not perfect.)

Electuary of assafœtida (benefits) from all stings or insects and quartan fever, and from . . . assafœtida, pepper, rue . . . to be pounded and sifted and mixed ("fiat massa"). The dose . . . removes . . .

(Much effaced, and words where . . . appears are obliterated.)

The dose of myrrh is half a drachm.

Talikûn. [No such word known in Arabic—probably a Mesopotamian corruption of Talcûn—Talc]: This vitriol (or alum) its scar will not granulate nor heal, and if with tweezers made of this vitriol (or alum) the hair be extracted, it will not grow at all, ever: and if a small hook be made of it, there will be caught a large fish; it debilitates it and makes it drunk; and if there be made of it a probe (*i. e.*, anything used for touching the eyes with stibium), and a sore eye be touched with it, it cures it; and it has, besides these virtues, high properties. It is made (thus): to be taken, zinc (calamine) prepared with hot water and steeped in the urine of cattle a long time, then taken out and dried, and to be taken some red coral and ground fine and steeped water of fresh glass next ten days, then taken out and dried, then all pulverised together. Then melt purified copper, and when melted in the crucible, inoculate it with the (above) medicine a time until it becomes cleansed. To every ten (parts) add two of the medicine.

To catch . . . take berries of solanum nigrum . . . bruise the leaves . . . and hang it . . . Another like it: take tartar and drug, and flower of barley and blood . . . equal parts; pound the whole . . . the place in which is . . . to it from every place, and if it is made . . . linen and let down to . . . the fish they can be caught with the hand. . . . Another from Said el Hamman: Take horse beans and cook them with sulphur . . . and seeds of hyoscyamus niger, any bird . . . to the earth and does not (sit) high . . . take it by the hand, and if you wish pour oil . . . into its mouth

On the Motion of Planetary Nebulae as Determined with the Spectroscope.

By JAMES E. KEELER.

(From the *Independent*, New York, Oct. 16, 1890).

JAMES E. KEELER, (A. B., J. H. U., 1881), of the Lick Observatory, "has just published a very interesting and important paper on the motion of certain planetary nebulæ in the line of sight as determined with the spectroscope. These objects are so faint that it is really surprising that he should have been able to observe their spectra with sufficient precision to enable him to get any trustworthy results; but there is no question that he has succeeded, and that too without resorting to photography. He used for the most part a spectroscope with a diffraction grating, and worked in the third and fourth order spectra, comparing the principal bright line in the nebula spectrum with the line in the spectrum of lead, which Huggins long ago pointed out as very close to the nebula line, and with the edge of the band in the spectrum of magnesium, which Lockyer has attempted to identify with the nebula line itself.

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[1] Cf. a paper by Mr. Mendes Cohen on the Cohen Collection of Egyptian Antiquities and by its collector, Col. Mendes I. Cohen, *Johns Hopkins University Circulars*, Vol. IV., No. 35, Dec., 1884, pp. 21–23.

Since neither of these lines is identical with the nebula line, it is not possible to deduce the motion of the nebula directly from the spectroscopic observations, as we can in the case of a star where we compare the sodium line in the spectrum of a star with the very same line as seen in the spectrum of a flame. In the nebula observations all we get directly is the *difference* between the rates of motion of the different objects. In default of certain knowledge we may, however, assume provisionally that the mean position of the nebula line, found by taking the average for all the objects observed, corresponds very nearly with the true position of the line in the spectrum of a nebula at rest. On this assumption Keeler finds that the ten nebulæ observed have velocities in the line of sight ranging from thirty-eight miles a second receding, to thirty-one miles approaching. The nebulæ which he observed are none of them conspicuous objects, being mostly small, and of the class known as "planetary" *i. e.*, they present round disks of nearly uniform brightness all over; these generally give a spectrum in which the lines are brighter than in the nebulæ which are larger and more diffuse; in fact the large, bright nebulæ often give continuous spectra, without any lines at all. One or two of his nebulæ, however, were of the kind which have a bright, well-marked nucleus. It is worth noting that his observations, while they show that the edge of the magnesium band is certainly very close to the position of the brightest line in the spectrum of a nebula at rest, are also perfectly decisive that the line is of such a sharp, definite character that it cannot possibly be due to that metal, as Lockyer has claimed; but they throw no light on the real origin of the line, and leave us as much in doubt as ever as to the unknown substance, which is the most conspicuous constituent of these bodies."

Discovery of Fossils in the Limestones of Frederick County, Maryland. By Charles R. Keyes.

(Published by permission of the Director of the U. S. Geological Survey.)

Considerable uncertainty has long existed concerning the geological age of the limestones of Frederick County, Maryland. Upon stratigraphical grounds an horizon of middle Lower Silurian has been usually assigned; but, so far as is known, no fossils have hitherto been found within the limits of this area to definitely determine the true position of the strata in question. Inasmuch as the Frederick deposits are the most easterly of the unaltered Maryland beds before reaching the metamorphosed schists of the Piedmont plateau, the detection of organic remains would go far towards establishing the true horizon of these sediments. It was for this reason, at the suggestion of Dr. G. H. Williams, that the recent reconnaissance of the district was made. As a result more than a score of specimens, most of them in an excellent state of preservation and representing four or five species, were obtained from six different stations. For the most part the fossils were the shells of brachiopods; but the remains of corals, crinoids and possibly also bryozoans were obtained. These will be more fully considered later.

The published accounts in regard to the calcareous beds of the Frederick valley are all extremely meagre and consist only of a few incidental references in connection with the geology of the neighboring districts. Rogers alludes briefly to this formation as exposed in a small tract in Virginia just across the Potomac river from Frederick county. Philip Tyson, the agricultural chemist of Maryland, in a description of the rocks of the Hagerstown valley, immediately west of Frederick, casually mentions the fact that fossils are of rare occurrence here. He correlated the Frederick limestones with those of Hagerstown; and considered them to be of the same age as the Chazy rocks of New York, or the Auroral of Rogers, in the earlier Pennsylvania reports. During the thirty years that have passed since the time when Tyson went over this region considerable paleontological evidence has accumulated towards fixing the true age of the Hagerstown rocks; but the Frederick limestones have not afforded such satisfactory data for correct correlation.

The Frederick valley is a low-lying plain having its long axis approximately north and south, between two sandstone-capped ridges. The elevation on the west forms the Catoctin mountain; that on the east a long range of hills of which the most prominent is Sugar Loaf mountain, near the Potomac river. It reaches a height of thirteen hundred feet. The Frederick limestone has a geographic extent of nearly one hundred square miles. The greatest length of the area is perhaps thirty miles; its maximum breadth, near Frederick City, six miles. The beds have a mean dip of about twenty-five degrees to the eastward. Along their western border they are covered by mesozoic red sandstones, ("Newark formation" of Russell). To the east the limestones pass gradually into shales and slates, the whole forming apparently a conformable series. The limestones in great part are bluish in color, compact and heavily bedded; but on approaching the shales they become more and more thinly bedded and very dark blue or nearly black owing to the bituminous matter present. The latter, however, is driven off by burning, leaving a pure white lime. In places this limerock is highly siliceous on account of the presence of a considerable amount of rather coarse quartz sand. This large amount of silica renders the rock unfit for the manufacture of lime, which at present is the chief use to which the Frederick limestones are put. From the thin-bedded belt the limestone passes into a more earthy facies and grades into dark colored calcareous shales and these again into slates or into sandy shales.

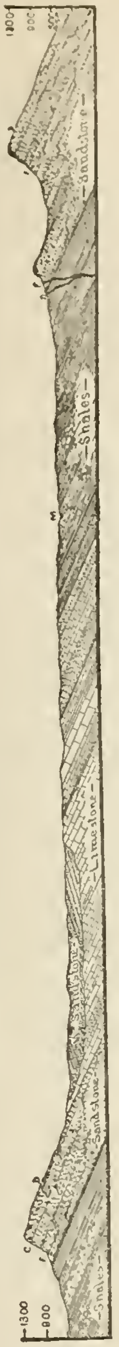

FIG. 1.—Section from Sugar Loaf to Catoctin Mountains. S. Sugar Loaf. C. Catoctin Mountains. M. Monocacy River. F, F, F. Faults. D, D. Dikes.

The accompanying section (Fig. 1), ten miles long, from the Sugar Loaf to the Catoctin mountains, exhibits the leading features in the geologic structure of the Frederick valley. The two sandstones forming the crests of the elevations on either side are probably of the same geologic age, but were brought into their present position through faulting. The sandstone basin lying on the upturned edges of Frederick limestones is of mesozoic age. The celebrated "calico marble," a rather extensive brecciated mass having the blue limestone as its chief constituent and the interstitial portions occupied by a bright red, earthy material, belongs also to the same age. The shales and limestones form a continuous series and probably represent a formation equivalent to the Chazy, Trenton and Hudson river groups of the New York section, being in Maryland not sufficiently differentiated to admit of a satisfactory separation into these horizons. This has already been found by Walcott to be the case in other portions of the Appalachian region.

As already intimated the fossils recently obtained in the Frederick valley limestones represent several important types. The crinoid plates found appear to belong to *Glyptocrinus*. The affinities of the coral remains have not, at the present time, been fully made out. Among the leading forms are the brachiopods, the two most characteristic of which are represented in figures 2 and 3. The first of the two forms is closely related genetically to *Strophomena alternata* (Conrad), though not identical with it. The second variety was, through the kindness of Mr. Walcott, compared with various species in the National Museum and found to correspond very closely with the type of Meek's *Orthis desmopleura* from the Chazy equivalents of Colorado. But the variation shown in the specimens collected is so great that the specific limitations of the different forms have not as yet been satisfactorily determined; nor has the synonymy been fully worked out. For these reasons all reference to definite species has been omitted in the present connection. It may be stated, however, that the fossils noticed here indicate with great probability an age to be correlated with that of the Trenton limestone of New York. But as previously suggested the whole series between the two great sandstones of Catoctin and Sugar Loaf mountains probably is equivalent to the Chazy, Trenton and Hudson river formations of the more northern localities.

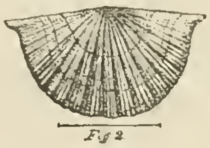

Fig 2

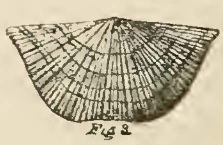

Fig 3

Sincere thanks are due Professor Williams for various suggestions in connection with the work.

Filar-Micrometer Observations of Comet d 1889.

Made with the 9.5-inch equatorial of the Johns Hopkins University. By C. A. Borst.

Greenwich M. T.	*Star.*	*No. Comp.*	*Comet — Star.*		*Comet's Apparent.*		*Log.* $p\Delta$	
			$\Delta\alpha$	$\Delta\delta$	α	δ	*for* α	*for* δ
d h m s			m s	′ ″	h m s	° ′ ″		
November 16 15 50 46	1	5.3	—0 32.22	+0 0.0	23 48 35.82	—0 30 11.6	9.4534	0.9156
19 14 46 3	2	6.3	—0 3.30	+3 49.1	23 50 44.44	—0 4 7.8	9.2560	0.9130
23 14 34 2	3	6.6	—0 21.38	+3 48.0	23 53 59.88	+0 32 19.0	9.2980	0.0976
25 14 30 45	4	6.8	—0 12.91	+2 12.7	23 55 48.44	+0 51 4.1	9.3119	0.9051
25 16 7 8	5	6.6	—0 19.70	—5 26.7	23 55 51.92	+0 51 51.8	9.5414	0.9072

Mean Places of Comparison Stars for the Equinox of 1889.0.

Star.	α	*Red. to App. Place.*	δ	*Red. to App. Place.*	*Authority.*
	h m s	s	° ′ ″	″	
1	23 49 5.81	+ 2.23	—0 30 29.4	+ 14.8	Y. 10846 Kam 4822.3
2	23 50 45.54	+ 2.20	—0 8 11.5	+ 14.6	Kam 4831.2
3	23 54 19.08	+ 2.18	+0 28 16.4	+ 14.6	Y. 10895
4	23 55 59.17	+ 2.18	+0 48 36.6	+ 14.8	Comp. s with 5
5	23 56 9.45	+ 2.18	+0 57 3.7	+ 14.8	Comp. s Y. 10926

CURRENT INFORMATION.

Dr. N. H. Morison, Provost of the Peabody Institute, died in Baltimore on November 14. The following is extracted from the Annual Report of President Gilman, now in press: "Recently death has removed another friend of the University, not indeed officially connected with it, but always interested in its proceedings. I refer to Nathaniel H. Morison, LL. D., Provost of the Peabody Institute, to whom all the scholars now assembled in Baltimore and all who have been here for many years past are deeply indebted. To him is chiefly due the honor of building up a library of costly, scholarly books, which ranks among the noblest libraries of the country. It is a collection wisely chosen, carefully catalogued, well arranged and constantly accessible. Dr. Morison has many other claims to grateful and honorable remembrance, but to us, the members of a University, his greatest service has been the collection of that great library on a plan so definite and so thoroughly carried out that it is supplemented by and is supplementary to all the other libraries of Baltimore. There are but few cities, if any in this country, and not many in Europe, where books of the highest character, as well as books of popular interest, are so readily accessible to all classes in the community, as they are in this place. The variety and excellence of our library system is largely due to the distinctive character that the Peabody Library has always maintained."

The Copley Medal of the Royal Society, London, has been awarded to Professor Simon Newcomb, for his contributions to gravitational astronomy.

The medal was first given by the Society in 1753, to Dr. Benjamin Franklin. In the following list the names are recorded of those who have received this honor during the last thirty years:

1860.	R. W. Bunsen.
1861.	L. Agassiz.
1862.	T. Graham.
1863.	A. Sedgwick.
1864.	C. Darwin.
1865.	M. Chasles.
1866.	J. Plücker.
1867.	K. E. von Baer.
1868.	C. Wheatstone.
1869.	H. V. Regnault.
1870.	J. R. Joule.
1871.	J. R. Mayer.
1872.	F. Wöhler.
1873.	H. L. F. Helmholtz.
1874.	L. Pasteur.
1875.	A. W. Hofmann.
1876.	C. Bernard.
1877.	J. D. Dana.
1878.	J. B. Boussingault.
1879.	R. J. E. Clausius.
1880.	J. J. Sylvester.
1881.	K. A. Würtz.
1882.	A. Cayley.
1883.	Wm. Thomson.
1884.	C. Ludwig.
1885.	A. Kekulé.
1886.	F. E. Neumann.
1887.	J. D. Hooker.
1888.	T. H. Huxley.
1889.	G. Salmon.
1890.	S. Newcomb.

The mathematical medalists in previous years have been: Waring (1784); Ivory (1814); Gauss (1838); Sturm (1841); Chasles (1865); Plücker (1866); Sylvester (1880); Cayley (1882); Thomson (1883); Salmon (1889).

Professor Austin Scott, who has been elected President of Rutgers College, was an Associate in History in this University from 1876 to 1882.

The Trustees have decided to reopen the Marine Laboratory of the University in the coming Spring. Further announcements will be made later.

The following is the speech delivered by the Public Orator in presenting Professor Sylvester to the Vice Chancellor of the University of Cambridge, England, for the honorary degree of Doctor of Science, June 10, 1890.

Plusquam tres et quinquaginta anni sunt elapsi, ex quo Academiae nostrae inter silvas adulescens quidam errabat, populi sacri antiquissima stirpe oriundus, cuius maiores ultimi primum Chaldaeorum in campis, deinde Palestinae in collibus, caeli nocturni stellas innumerabiles, prolis futurae velut imaginem referentes, non sine reverentia quadam suspiciebant. Ipse numerorum peritia praeclarus, primum inter Londinenses Academiae nostrae studia praecipua ingenii sui lumine illustrabat. Postea trans aequor Atlanticum plusquam semel honorifice vocatus, fratribus nostris transmarinis doctrinae mathematicae facem praeferebat. Nuper professoris insignis in locum electus, et Britanniae non sine laude redditus, in Academia Oxoniensi scientiae flammam indies clariorem excitat. Ubicumque incedit, exemplo suo nova studia semper accendit. Sive numerorum *θεωρίαν* explicat, sive Geometriae recentioris terminos extendit, sive regni sui velut in puro caelo regiones prius inexploratas pererrat, scientiae suae inter principes ubique conspicitur. Nonnulla quae Newtonus noster, quae Fresnelius, Iacobius Sturmius, alii, imperfecta reliquerunt, Sylvester noster aut elegantius explicavit, aut argumentis veris comprobavit. Quam parvis ab initiis argumenta quam magna evolvit; quotiens res prius abditas exprimere conatus, sermonem nostrum ditavit, et nova rerum nomina audacter protulit! Arte quali numerorum leges non modo poetis antiquis interpretandis sed etiam carminibus novis pangendis accommodat! Neque surdis canit, sed 'respondent omnia silvae,' si quando, inter rerum graviorum curas, aevi prioris pastores aemulatus,

'Silvestrem tenui musam meditatur avena.'

Duco ad vos Collegii Divi Ioannis Socium, trium simul Academiarum Senatorem, quattuor deinceps Academiarum Professorem, Jacobum Josephum Sylvester.

At a meeting of the Trustees of the University, held December 1, 1890, Dr. Hartwell resigned the office of Director of the Gymnasium and Associate in Physical Training, whereupon the following resolution was adopted:

Resolved, That the resignation of Dr. Hartwell be accepted to take effect December 31, 1890, and that the President of the University be requested to express to Dr. Hartwell the respect of this Board for his character and services and their good wishes for his success in the honorable station to which he has been called.

Dr. Cyrus Adler has been granted a year's leave of absence to go to the Orient in the interest of the Columbian Fair in Chicago in 1893. During his absence, Dr. Christopher Johnston, Jr., will conduct his classes. At a recent meeting of the Foreign Affairs Committee of the Fair, Dr. Adler was appointed to superintend a plan of his own, approved by the committee for securing a large exhibit from the East.

NOTES ON RECENT PUBLICATIONS.

The Kāuçika-Sūtra of the Atharva-Veda, Edited by Maurice Bloomfield. (*lxviii + 422 pages, 8o; presented to the Eighth International Congress of Orientalists,* 1889; *published by the American Oriental Society, New Haven,* 1890.)

The so-called *editio princeps*, or first publication from the MSS. of an Indian Vedic text undertaken in Baltimore deserves more than passing notice. Such an undertaking, thousands of miles away from the natural base of such operations, involves difficulties which can hardly be imagined by the uninitiated, and the composition of such a work in this country is noteworthy.

The Kāuçika-Sūtra, as published, forms the XIVth volume of the *Journal of the American Oriental Society.* It is the second strictly Vedic text whose publication has been undertaken by an American, the first having been the edition of the Atharva-Veda—published, however, in Berlin, in 1856, over thirty years ago—by Professors Roth of Tübingen, and Whitney of New Haven.

The present work continues directly the labor of those two scholars; for, consisting as it does of minute directions regarding the use of the hymns of the Atharvan, it is of vital importance for the correct understanding of those hymns, and it is with the aid of these sūtras that Dr. Bloomfield has been enabled to correctly interpret a considerable number of them which have hitherto been misunderstood.[1] The importance of the Atharvan literature may be seen from the fact that the A.-V. is emphatically the Veda of the people. With its attendant literature, especially the Kāuçika-Sūtra, it pictures more extensively than can elsewhere be found the folk life of the Indian tribes, and, indeed, of the entire Indo-European family. Nor is this all. It is also the oldest picture of this kind now in our possession. The extent and character of the light thrown upon primitive Aryan times can be seen by a glance at the subject matter of the Kāuçikā which is wider in the scope of its practices than any other known Sūtra. The Kāuçikā contains sacrifices for the new and full moons, rites for preparing holy water, for begetting wisdom, obtaining every desire, securing harmony, averting misfortune, dividing an inheritance, building a house, charms for removing all possible diseases, averting injuries, driving out demons; rites for securing a husband, getting children, damaging rivals (female); charms against lightning, against witchcraft, for luck in business, luck in gambling, to obtain knowledge of the Vedas, guard against evil dreams, witchcraft practices, charms to secure long life, to free the house from serpents, rites for evening oblations, morning oblations, marriages, funerals, ceremonies for the reception of guests, omens and portents, festivals, instructions regarding the study of the Vedas, etc., etc.

It is not to be wondered at that so important a text remained unpublished for so long a time after the appearance of the Atharva-Veda when the difficulty of interpretation and the scarcity of materials needed to establish the text are considered. Dr. Bloomfield conceived the idea of endeavoring to collect the necessary documents as early as 1882. In the summer of that year he went to Tübingen, taking with him a copy of a single Berlin codex, in order to collate three MSS. in the possession of Professor von Roth. Even then it became apparent to him that the materials in hand were so defective as to render the establishment of the text an impossibility. He then opened negotiations with the educational department of the British Government in India. They were successful, and in 1883 a case containing thirteen Atharvanic MSS. arrived in Baltimore with a printed resolution of the Bombay government permitting their dispatch and also their use for an indefinite period. Two of them turned out to be copies of the Kāuç. itself, one being the least faulty of any yet received. Six readings were now available, yet an edition was still an impossibility. Indian prose texts are written continuously from chapter to chapter and with but few punctuation marks, so that it is extremely difficult to get at the sense of any considerable portion of such a text without the help of the native commentators. This is doubly true in a work like the Kāuçika, whose epigrammatic sūtras were not divided off at all. It was only after a second journey to Germany—this time to Berlin in 1884—that the work could be approached in earnest. Dr. Bloomfield there found the fragmentary commentary of Dārila, called the Kāuçika-Bhāṣya, defective and corrupt, to be sure, to a degree not easily described, but yet affording sufficient help, especially in the explanation of words, of which there were some two hundred in the body of the work not to be found in any extant Sanskrit lexicon, to enable him to obtain a complete understanding of the Sūtra. Negotiations had also been opened with various private Indian scholars and later on success came to these efforts also. Through the mediation of Mr. Shankar Pandurang Pandit, a second copy of Dārila's commentary was obtained. It is beautifully written but reproduces with great exactness every corruption of the Berlin codex, and ends at precisely the same point, making it evident that both go back to the same source which was itself an incomplete copy of Dārila's work, since he is quoted in the Keçavī on passages which lie beyond the range of the present MSS. The Keçavī is a *paddhati, i. e.*, an explanation mostly by expansion of the sūtras, particularly those relating to the house-ritual. By the kindness of the same Indian scholar, a copy of this MS., which was in his possession, was prepared and sent on to aid in the work.

The edition was completed in time to be presented to the last International Congress of Orientalists, held in September, 1889, at Stockholm and Christiania under the auspices of King Oskar II. The type was set at Berlin and the stereotyped plates when completed were forwarded from there to New Haven where the *J. A. O. S.* is printed. The volume is dedicated, with peculiar fitness, to Professor Whitney, whose studies in the Atharva-Veda have formed a large part of his life's work.

H. W. MAGOUN.

The Absolute Participle in Anglo-Saxon. A dissertation presented to the Board of University Studies of the Johns Hopkins University for the degree of Doctor of Philosophy. By MORGAN CALLAWAY, JR. [*Baltimore, The Publication Agency of the Johns Hopkins University,* 1889, 52 *pp., 8o.*]

In the author's own words, "An attempt is here made to give a history of the Absolute Participle in Anglo-Saxon. The frequency of this construction, its uses, its origin, and its stylistic value at once present themselves as questions pertinent to our inquiry, and are accordingly discussed at length, and as far as possible definitely answered. As contributing to a correct understanding of the Absolute Participle in Anglo-Saxon, a few pages are devoted to the same construction in the other Teutonic languages." Before the completion of this study, abstracts from it were read before the Johns Hopkins University Philological Society, January 18, 1889, after which the author published a provisional summary of his results in the *Johns Hopkins University Circulars* for April, 1889 (Vol. VIII, p. 64). In the final published form of the work the author sums up his results as follows:

1. The normal case of the Absolute Participle in Anglo-Saxon is the dative. Rarely the instrumental is so used, and in later MSS. a "crude" form.

2. The uses of the Absolute Participle in Anglo-Saxon correspond closely to those of the ablative absolute in Latin, and are somewhat more varied than has hitherto been stated.

3. Though seemingly frequent in some of the closer Anglo-Saxon translations from the Latin, the Absolute Participle occurs there chiefly in certain favorite phrases. In the freer translations the Absolute Participle is less frequent, is found mostly in certain collocations, and, moreover, wavers between an absolute and an attributive use. In the more independent literature the Absolute Participle is practically unknown. Hence the absolute construction is not an organic idiom of the Anglo-Saxon language.

4. On the contrary, the idiom was borrowed from the Latin, no Absolute Participle occurring in Anglo-Saxon without a direct or an indirect prototype in Latin.

5. This foreign importation remained an alien to the last; the Absolute Participle was never naturalized in Anglo-Saxon: the notions usually expressed by an absolute clause in Latin are habitually denoted otherwise in Anglo-Saxon.

6. Aside from its occasional use of the dative absolute, the Anglo-Saxon employed the following substitutes for the Latin ablative absolute:

(1). Normally a subordinated finite verb, as did the other Teutonic languages.

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[1] See his "Seven Hymns of the Atharva-Veda," *American Journal of Philology*, vol. vii, nr. 4, pp. 466-88; and "Contributions to the Interpretation of the Vedas," Second Series (ibid., vol. xi, nr. 3).

(2). Less frequently a co-ordinated finite verb.

(3). A prepositional phrase consisting either (*a*) of a preposition and a substantive limited by another substantive or (*b*) of a preposition (*be*) followed by a substantive and a participle in the dative. In (*b*) the participle is not absolute, as has often been claimed, but is attributive.

(4). A substantive and an adjective in the dative.

(5). A verb in the infinitive mood.

(6). An appositive substantive.

(7). A complementary adjective.

(8). An adverb.

(9). A substantive in the dative or the instrumental, occasionally limited by another substantive.

(10). An appositive participle.

(11). A noun and a verbal substantive in the dative.

7. The stylistic effect of the absolute participle in Anglo-Saxon was much the same as in the classical languages: it gave movement to the sentence; it made possible flexibility and compactness. But, owing to the artificial position of the absolute construction in Anglo-Saxon, its stylistic value was reduced to a minimum, was indeed scarcely felt at all. The Absolute Participle rejected as an instrument of style, the Anglo-Saxon had no adequate substitute therefor. The two commonest substitutes, the dependent sentence and the co-ordinate clause, as used in Anglo-Saxon, became unwieldy and monotonous. Brevity and compactness were impossible; the sentence was slow in movement and somewhat cumbersome. The language stood in sore need of a more flexible instrument for the notation of subordinate conceptions, of such an instrument as the absolute dative seemed capable of becoming but never became.

Hitherto this monograph has received notice by Professor Albert S. Cook (*Modern Language Notes*, Vol. V, pp. 87–89); by Professor J. G. McElroy (*The American* for April 12, 1890); in *The Nation* for May 15, 1880 (p. 393), and by Professor L. Kellner, of Vienna, *Literaturblatt für germ. und rom. Philologie*, Vol. XI, No. 6). Professor McElroy believes that Dr. Callaway "shows beyond cavil" that the construction in question is borrowed from the Latin. He then passes to the consideration of the construction in present English, directing his remarks more particularly to that side of the problem touched upon by Dr. Bright in *Modern Language Notes* for March, 1890 ("The Objective Absolute in English.") Professor Kellner, on the other hand, is not fully persuaded that Dr. Callaway's fourth conclusion has been incontrovertibly demonstrated, and promises to give his reasons for this view in "Principles of English Syntax,"—a work which he is now preparing as a supplementary volume to Morris' "Historical Outlines of English Accidence." He however closes by saying: "Trotzdem . . . . ist es mir eine Freude, anzuerkennen, dass Callaway's Arbeit eine der allerbesten ist, die das immer mehr wachsende Intresse an der Syntax seit zehn Jahren hervorgebracht hat." J. W. B.

Ueber den Japanischen Grundbesitz, dessen Verteilung und landwirtschaftliche Verwertung.

[On Landed Property in Japan, its Distribution and its Agricultural Utilization]. (Inaugural-dissertation.) By INAZO (OTA) NITOBE. [*Halle*, 1890].

This thesis is the fruit of three years' work at Bonn, Berlin, and Halle. The broad basis of scholarship shows itself in the author's mastery of his material and in his ability to bring his results under the laws formulated by such authorities as Maine, Laveleye, and Riehl. He is quick to note parallels and detect historical analogies. Hence this new contribution from Japanese sources fits well into the mass of literature on the land problem, and is full of interest for the student of economics. It is interesting, nay, even startling, to note how Japan keeps step with America in the progress of "farm mortgages," and how the peasant suffers from low prices since the abolition in 1882 of the government "sub-treasuries."

Dr. Nitobe finds clear evidence of early community of land in Japan. This principle was recognized in the ancient Akatsi-Ta system, by which the arable land was every few years reallotted to the males in such proportions as to make equal provision for all over five years old. From this primitive idea that the land of Japan belonged to its inhabitants, the government advanced to the "Asiatic notion" that the Emperor is "the Son of Heaven and Lord of the Earth." With this notion there grew up, between the seventh and twelfth centuries, parallel to the European system, a complete system of feudalism with fiefs, services, and a military class, the "samūrai." Of the "land-grabbing" methods by which Japan came to be owned by a few feudal lords, the author does not give as many details as one could wish. One would like to compare the process in Old Japan with the process in Argentina, Texas or New South Wales.

After the account of the rise of feudalism the interest centers in the radical reform of 1871, by which feudalism was abolished, landlords were pensioned off, and land was reserved for the people. Here the chiefly concerned are the four hundred thousand "samūrai" of the military caste and the twenty-five million peasants. The history of the former class is the history of immemorial pride brought to the hard alternative of manual labor or slow starvation. One cannot help sympathizing with the government in its efforts to placate and provide by offices or land-grants for these haughty Castilians of the Orient.

The history of the peasant class since 1871 is not wholly roseate. There is not a little to please political cynics. Debts have been foolishly incurred, and in some provinces nine-tenths of the land is mortgaged. Luxury and carelessness have spread, and since the institution of a money tax and the cessation of government inspection, the quality of the rice has noticeably deteriorated. Recent years have seen a growth of the tenant system, a multiplying of capitalist landlords, a *morcellement* of the land, and a marked flow of country population to the cities. Although the relation of landlord and tenant is as yet pervaded by a kindly personal interest, the author hints at *latifundia* and Irish rack-rents.

The historical account is followed by an interesting description of Japanese agriculture as it is. On the whole the book is pithy, suggestive, and well worth reading. E. A. R.

The Intercourse between the United States and Japan.

By INAZO (OTA) NITOBE. [*Baltimore, The Johns Hopkins Press*, 1890, 200 *pp.*, 8*o*.]

Out of the mass of materials, American, Japanese, foreign, official, and private are selected the salient and most interesting features in the intercourse between the United States and Japan. The monograph is a convenient source of reference for information concerning the gradual development of the foreign relations of Japan, since its "discovery" by the Portuguese.

A few of the points dwelt upon are the reasons why Japan closed her ports for two centuries and a half; the means by which Perry opened the country to foreign commerce; and the subsequent manner in which the United States dealt with the Island Empire. The author touches upon the often neglected but important part played by our sagacious and generous minister, Townsend Harris, to whom great credit is attributed for inaugurating a new "Eastern policy" and establishing the lasting friendly relations of the two countries.

Dr. Nitobe gives a Japanese view of events and of American diplomatic methods. He describes the part our government and its citizens have taken in helping Japan to achieve the rapid changes which have made her a marvel among nations. We see from a native standpoint the effect of the educational influences which have not only borne fruit in Japan, but have also induced the influx of Japanese students to American schools and colleges. We discover the causes which have operated to make the large commercial expectations of the United States an unrealized dream, so far as the opened ports of Japan have affected our mercantile interests.

To the student of History and Politics the book is valuable, not only because of the events it narrates and the statistics it contains, but also because of the justice done the actors in our international history; while to those who are interested in the educational and religious phases of our foreign relations, there is an impartial and clear statement of facts, which should furnish wholesome food for reflection.

The Supreme Court of the United States: Its History and Influence in our Constitutional System.

By W. W. WILLOUGHBY. [*Baltimore, The Johns Hopkins Press*, 1890, 124 *pp.*, 8*o*.]

This volume is the result of a line of study pursued at the Johns Hopkins University during the last year, and was prepared in part fulfilment of the requirements for obtaining the degree of Doctor of Philosophy. Mr. Willoughby has considered the Supreme Court from two standpoints—the historical and the administrative. In the early chapters is discussed the extent to which the powers which now characterize the supreme federal judiciary were exercised by courts of law during colonial times and under the Articles of Confederation. The author then considers the problem of obtaining a new and better form of government, so far as it related to the establishment of a judiciary with sufficient and proper powers. A succeeding chapter is devoted to a consideration of the establishment and jurisdictions of our present federal courts, as provided for in the Judiciary Act of 1789. The historical treatment of this court is completed in the chapter entitled "The Supreme Court in Politics."

From the administrative standpoint are discussed the actual scope of the powers of, and the relations borne by, the Supreme Court to the other departments of the federal government and to the state governments. In this portion of his work, Mr. Willoughby has made a careful study of the opinions rendered in the leading cases decided in this court, and has attempted a philosophical treatment of the Supreme Court in its relations to Congress, to the Executive, and to the state legislatures and judiciaries. A chapter devoted to the present condition and needs of this court completes the study of this interesting branch of our National Government. To lawyers and students of constitutional law and history this book will be of great interest.

Elements of Crystallography for Students of Chemistry, Physics and Mineralogy. By George Huntington Williams. viii and 250 pp. 12o. 383 figures and 2 plates. [*New York, Henry Holt & Co.,* 1890].

The science of crystallography originated as a special branch of solid geometry, based upon certain fundamental propositions which were found to accord with the manner in which faces are distributed on natural crystals. These propositions, as the fundamental laws of crystallography, were purely empirical, and their elaborate mathematical treatment by founders of the science, like Lévy, Weiss and Neumann did not tend to make the subject generally attractive or popular. During recent years, however, much has been done to remove both the difficulty and abstruseness of crystallography. The speculations of Bravais and Sohncke have indicated how the form and physical properties of crystal alike depend on the regularity of their internal molecular structure, while both in turn afford an important clue as to what this structure is. Groth has succeeded in deducing all possible crystal forms and in clearly tracing their relationships almost without the aid of mathematics. Hence, by securing an intrinsic interest through its bearing on molecular structure, and at the same time by being simplified by a non-mathematical treatment, crystallography is constantly growing into more general knowledge and popular favor.

Crystals present in many respects unique material for the investigations of both chemists and physicists. The important laws of isomorphism, polymorphism and morphotropism have been deduced from the comparative study of their forms and compositions; for the investigation of all forms of radiant energy they are essential; while the recent work of O. Lehmann shows what important light the subject of crystallogenesis may be made to throw upon questions of molecular physics.

Thus an elementary knowledge of crystallography has become hardly less desirable for chemist or physicist than for a mineralogist—a fact which is recognized in the ever-increasing importance given to crystallography in the German universities as an accessory to the courses in chemistry and physics. In this country also lectures on the subject are given at most universities, and form a favorite subordinate subject with chemical and physical students. One difficulty with such instruction has been the absence of a satisfactory English text-book. The time for this subject at the disposal of the student is in most cases short and what is needed is a brief and simple presentation of it, free from mathematics. It was in the hope of supplying such a want that the above book has been prepared. In neither matter nor method does it make any claims to originality, but only attempts to present the method and illustrations of Groth in such a condensed form as experience has shown to be suitable for an introduction to a course in mineralogy, intended largely for chemical students.

The modern ideas of crystal structure are first treated and the dependence of both form and physical properties upon this pointed out. The general characteristics common to all crystals are next described, and then the possible form-types belonging to each system are deduced in succession. A chapter is then devoted to crystal aggregates and another to the imperfections of crystal form, while the simple zone relations, projection and crystal drawing are subjects reserved for an appendix. The notations of Weiss, Naumann and Miller are employed side by side throughout. All mathematical formulae, as well as any description of crystallographic instruments, have been omitted for the sake of brevity and simplicity, since the theory and practice of crystal measuring and calculation is better learned in the laboratory than by lectures.

PROCEEDINGS OF SOCIETIES.

Scientific Association.

Officers for the year 1890–91:
Dr. W. K. Brooks, *President.*
Dr. H. N. Morse, *Vice-President.*
Dr. J. S. Ames, *Secretary.*

November 19.—Ninety-sixth regular meeting. Dr. Brooks in the chair. Fifty members present.

Papers read:
A New Phase of Dissociation, by H. N. Morse.
The Work of the U. S. Geological Survey, by W. B. Clark.

Philological Association.

October 17.—One hundred and fourth regular meeting. Professor Gildersleeve in the chair. Forty-seven members present.

Papers read:
Literary Frauds in Antiquity, by A. Gudeman. (*Abstract on p.* 29.)
Review of Becker's "Ueber den Ursprung der Romanischen Versmasse," by F. M. Warren.

November 20.—One hundred and fifth regular meeting. Professor Gildersleeve in the chair. Fifty members present.

Papers read:
On the Adaptation of Suffixes to Certain Classes of Substantives, by M. Bloomfield.
On the Interpretation of a '*Spruch*' 31, 33 of Walther von der Vogelweide, by H. Wood.
On the Use of '*tun*' in Anglo-Saxon, by J. W. Bright.

Historical and Political Science Association.

October Meetings.—Dr. H. B. Adams in the chair.
Early History of the Johns Hopkins University, by D. C. Gilman.
Oriental Institutions of Learning, by H. B. Adams.
Confucius and Chinese Education, by H. B. Adams.
Greek Education, by H. B. Adams.

November Meetings.—
How the Census was taken and how it was not taken, by John C. Rose.

[*November* 14.—A Social Science Evening. Brief addresses upon practical aspects of Social Science, by J. R. Brackett, John Glenn, J. M. Glenn, R. J. Finley, A. B. Woodford, C. L. Smith, and H. B. Adams.]

The Development of the Canadian Constitution. Four Lectures, by Wm. Houston, of Toronto.
Fraternalism *versus* Paternalism in Government, by R. T. Ely.
A State-rights Problem in Ticino, Switzerland, by J. M. Vincent.

Mathematical Society.

November 13.—
Papers read:
The Multiplication and Division of Vectors, by C. H. Chapman.
On the Solution of the Biquadratic, by J. F. Springer.

Baltimore Naturalists' Field Club.

October 14, 1890.—The following officers were elected for the year:
President, Dr. B. W. Barton;—*Vice-President*, Mr. G. L. Smith;—*Chairman of Geological Section*, Dr. G. H. Williams;—*Chairman of Botanical Section*, Mr. B. Sollers;—*Chairman of Zoölogical Section*, Dr. T. H. Morgan;—*Recording Secretary*, Mr. J. L. Kellogg.
Dr. Williams spoke of a map and model of Baltimore and vicinity.

November 12, 1890.—Mr. P. R. Uhler spoke on Fossils near Frederick.
Mr. Sollers spoke on Abnormalities in Plants.
Mr. McRoberts gave some account of Chrysanthemum culture.

Young Men's Christian Association.

October 23.—Mr. G. L. Stewart was elected Treasurer, vice Mr. Delano Ames resigned. Mr. F. F. Briggs was elected a member of the Executive Council. It was decided to hold a business meeting on the second Thursday of each month, at which the Executive Council and the chairmen of the standing committees shall make reports.

November 13.—Notice was given of a Students' Biblical Institute at Amherst, Nov. 28–30, conducted by the International Committee, and it was decided to send any delegate volunteering to go at his own expense. Several committees reported progress. The chairmen of the standing committees are: Lecture and Library, S. Sherwood; Devotional, B. Newhall; Publication, W. H. Tolman; Ways and Means, D. Ames; Music and Rooms, D. E. Roberts; Correspondence, W. S. Aldrich; Aggressive Work, H. G. Hoadley; Membership (University), B. C. Steiner, (Hospital) Dr. Flexner; Visitation of the Sick, G. Petrie; White Cross, J. L. Smiley. There are now 165 active members, 23 associate, and 13 sustaining—72 have been added this year.

The following lectures have been delivered in Levering Hall.—October 12, President D. C. Gilman, The City of Jerusalem.—October 25, Dr. H. B. Adams, Confucius.—November 23, Rev. Wayland D. Ball, Moses, the Jew.—December 7, Dr. M. Bloomfield, Buddhism.

COURSE OF READING FOR GRADUATE AND SPECIAL STUDENTS IN MORPHOLOGY AT THE JOHNS HOPKINS UNIVERSITY.

Prepared by Dr. W. K. Brooks.

GENERAL WORKS.

Balfour, F. M. A Treatise on Comparative Embryology. 2 vols., 1881.

Claus, C. Lehrbuch der Zoologie. 1 vol., 1887, *or*

Claus-Sedgwick. Elementary Text Book ot Zoology. 2 vols., 1885.

Darwin, Charles. The Origin of Species by means of Natural Selection. 6th Edition.

Geddes and Thomson. The Evolution of Sex. 1890.

Gegenbaur, Carl. Elements of Comparative Anatomy. 1878.

Haeckel, Ernst. Generelle Morphologie der Organismen. 1866.

——. Gastraea Theorie. (*Jena. Zeitschrift f. Natur.*, *Vols.* 8, 9, 10, 11, 1874-77), —*or*

Haeckel-Wright. Gastrae Theory. (*Quar. Jour. Mic. Sci.*, *Vol.* 14, 1874).

Hatschek, Berthold. Lehrbuch der Zoologie. (In course of publication, 1888—).

Hertwig, O. and R. Die Coelom-theorie. Versuch einer Erklärung des mittleren Keimblattes. 1881.

Korschelt und Heider. Lehrbuch der Vergleichenden Entwicklungsgeschichte der Wirbellosen Thiere. (In course of publication, 1890–.)

Lang, Arnold. Lehrbuch der Vergleichenden Anatomie. (In course of publication, 1888–.)

Lankester, E. Ray. An Account of Prof. Haeckel's recent Additions to the Gastrae Theory. (*Quart. Jour. Mic. Sci.*, *Vol.* 16, 1876.)

——. Notes on the Embryology and Classification of the Animal Kingdom: Comprising a revision of Speculations relative to the Origin and Significance of the Germ Layers. (*Quart. Jour. Mic. Sci.*, *Vol.* 17, 1877.)

Sedgwick, A. On the Origin of Metameric Segmentation. (*Quart. Jour. Mic. Sci.*, *Vol.* 24, 1884.)

Waldeyer, W. Karyokinesis and its Relation to Fertilization. (*Quart. Jour. Mic. Sci.*, *Vol.* 30, 1889.)

Wallace, A. R. The Geographical Distribution of Animals with a study of Living and Extinct fauna as elucidating the past changes of the Earth's surface. 2 vols., 1876. (Read particularly part on mammals.)

Weismann, A. Essays on Heredity and Kindred Biological Problems. 1889.

SPECIAL WORKS.

Protozoa.

Lankester, E. Ray. Protozoa. (*Encyclopædia Britannica, 9th Ed.*)

Maupas, E. La Rajeunissement Karyogamique chez les Ciliés. (*Archives de Zool. Experimentale. 2d Series*, *Vol.* 7, 1889.)

Coelenterata.

Allman, Geo. James. A Monograph of the Gymnoblastic or Tubularian Hydroids. Part I. 1871.

Brooks, W. K. The Life History of the Hydromedusae: A discussion of the origin of the Medusae and the significance of Metagenesis. (*Memoirs from Biol. Lab., J. H. U.; Selected Morphological Monographs I, Reprinted from Memoirs of Boston Soc. of Nat. Hist. Vol.* 3, *No.* 12, 1886.)

Chun, Carl. Ueber die Architektonik der Radiärthier im Algemeinen und diejenige der Ctenophoren in Speciellen. (*Fauna and Flora, Golf Neapel, Vol.* 1, *Chap.* 1, 1880.)

Dana, Jas. D. Coral and Coral Islands. 1874.

Heider, Karl. Zur Metamorphose der Oscarella lobularis. (*Arbeiten aus dem Zoologischen Institute der Universität Wien*, *Vol.* 4, 1886.)

Haeckel, Ernst. The Organization of the Medusae. (Report on the deep sea Medusae. *Challenger Reports, Zool. Vol.* 4, 1881.)

Hertwig, O. and R. Die Actinien. 1879.

Hertwig, O. and R. Nervensystem und Sinnesorgane der Medusen. 1878.

Weismann, A. On the Sexual Cells of the Hydromedusae. (Abstract in *Nature*, Vol. 29, 1883.)

Metschnikoff on the Germ Layers. (Translation by H. V. Wilson, of Chap. VII of his Embryologische Studien an Medusen.) (*American Naturalist*, *Vol.* 21, 1887. 1st half, pages 334-350. 2d half, pages 419-433).

Wilson, E. B. The Development of Renilla. (*Memoirs from Biol. Lab. J. H. U.; Selected Morphological Monographs I. Reprinted from Phil. Trans. Royal Soc., Part* 3, 1883.)

Vermes.

Hatschek, Berthold. Studien über Entwicklungsgeschichte der Anneliden. Monograph. (Reprinted from *Arb. Zool. Inst. Wein.*, *Vol.* 1, *Heft* 3.)

Hertwig, O. Die Chaetognathen. (*Jena. Zeit. f. Natur*, *Vol.* 14, 1880.)

Kleinenberg, N. Die Entstehung des Annelids aus der Larve von Lopadorynchus. (*Zeit. f. wiss. Zool.*, *Vol.* 14, 1886, *Chap. I, II, V, VI.*)

Lano, Arnold. Die Bau von Gunda segmentata und die Verwandschaft der Plathelminthen mit Coelenteraten und Hirudineen. (*Mittheil. aus d. Zool. Station zu Neapel*, *Vol.* 8, 1832.)

Thomas, A. P. The Life History of the Liver Fluke (*Fasciola hepatica*). (*Quart. Jour. Mic. Sci.*, *Vol.* 23, 1883.)

Van Beneden, E. Researches on the Dicyemidae. (*Abstract in Quart. Jour. Mic. Sci.*, *Vol.* 17, 1877.)

Whitman, C. O. A Contribution to the Embryology, Life History and Classification of the Dicyemidae. (*Mitth. Zool. Station zu Neapel*, *Vol.* 4, 1883.)

Wilson, E. B. The Embryology of the Earthworm. (*Journal of Morphology*, *Vol. III*, *No.* 3.)

Echinodermata.

Semon, R. Die Homologien innerhalb des Echinodermen stammes. (*Morph. Jahrbuch.* 15, 1889).

——. Die Entwicklung der Synapta digitata und ihre Bedeutung für die Phylogenie der Echinodermen. (*Jena. Zeit. f. Naturwissenshaft.*, *Vol.* 22. *Neue Folge* 15, 1888.)

Arthropoda.

Boas, J. E. V. Studien über die Verwandtschafts-beziehungen der Malakostraken. (*Morph. Jahrbuch.*, *Vol.* 8, 1883.)

Buhrmeister. Manual of Entomology,—*or*

Newport. Insects. (*Todd's Encyclopedia.*)

Claus, C. Neue Beitrage zur Morphologie der Crustaceen. (*Arb. Zool. Inst. Wein.*, *Vol.* 6, 1885.)

Dohrn, Anton. Die Pantapoda. (*Fauna and Flora, Golf Neapel.*, *Vol.* 3, 1881. Read Nauplius Theory, pp. 82-119.)

Grobben, Carl. Die Entwicklungsgeschichte von Cetochilus septentrionalis. (*Arb. Zool. Inst. Wein.*, *Vol.* 3, *Heft* 3, 1881.)

Heider, Karl. Die Embryonal Entwicklung von Hydrophylus Piseeus L

Lankester, E. Ray. On the Appendages and Nervous system of Apus. (*Quart. Jour. Mic. Sci*, *Vol.* 21, 1881.)

——. Limulus and Arachnid. (*Quart. Jour. Mic. Sci.*, *Vol.* 21, 1881.)

Reichenbach, Heinrich. Entwicklungsgeschichte des Flusskrebses. Monograph. 1886.

Sedgwick, A. The Development of Peripatus capensis. (*Quart. Jour. Mic. Sci.*, *Vol.* 25, 1885.)

Watase, S. Morphology of the Compound Eyes of Arthropods (*Studies from Biol. Lab. J. H. U.*, *Vol.* 4, *No.* 6, 1890.)

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Hatschek, B. Ueber Entwicklungsgeschichte von Teredo. (*Arb. Zool. Inst. Wein.*, *Vol.* 3, 1881.)

Lankester, E. Ray. Mollusca. (*Encyclopædia Britannica*, 9 *Ed.*)

Rabl, Carl. Ueber die Entwicklung der Tellerschnecke. (*Morph. Jahrbuch*, *Vol.* 5, 1879.)

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Lankester, E. Ray. Polyzoa. (*Encyclopaedia Brittannica*, 9 *Ed.*)

Balanoglossus.

Bateson, W. (1) The early stages in the Development of Balanoglossus. (*Quart. Jour. Mic. Sci.*, *Vol.* 24, 1884.)

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——. (3) Continued account of the later stages in the development of B. Kowalevskii and of the Morphology of the Enteropneusta. (*Quart. Jour. Mic. Sci.*, *Vol.* 26, 1886.)

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Brooks, W. K. Anatomy of Salpa Chain. (*Studies from Biol. Lab. J. H. U.*, *Vol* 3.)

Herdman, Wm. A. Report upon the Tunicata collected during voyage of H. M. S. Challenger—General Parts. (*Challenger Reports*, *Zool. Vol.* 27, 1888.)

Kowalevsky, A. Weitere Studien über die Entwicklung der Einfachen Ascidien. (*Archiv. für Mic. Anat.*, *Vol.* 7, 1871.)

Seeliger, O. Die Entwicklungsgeschichte der Socialen Ascidien. (*Jena. Zeit. für Naturwissenschaft*, *Vol.* 18, 1885.)

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Balfour, F. M. A Monograph on the Development of Elasmobranch Fishes.

Dohrn, Anton. Der Ursprung der Wirbelthiere und das Princip des Functionswechsels. 1875.

Haddon, Alfred C. An Introduction to the Study of Embryology.

Hatschek, B. Studien über Entwicklung des Amphioxus. (*Arb. Zool. Inst. Wein.*, *Vol.* 4, 1881.)

Hertwig, O. Lehrbuch der Entwicklungsgeschichte d. Menschen und der Wirbelthiere. 1888.

Huxley, T. H. A Manual of the Anatomy of Vertebrated Animals. 1871.

Lankester, E. Ray. Contribution to our Knowledge of Amphioxus lanceolatus. (*Quart. Jour. Mic. Sci.*, *Vol.* 29, 1889.)

Lankester-Willey. The Development of the Atrial chamber of Amphioxus. (*Quart. Jour. Mic. Sci.*, *Vol.* 31, 1890.)

Wiedersheim-Parker. Elements of Comparative Anatomy of Vertebrates. 1886.

A REVIEW OF THE FIRST TEN YEARS OF THE AMERICAN JOURNAL OF PHILOLOGY.*

[Reprinted from the *Nation*, N. Y., July 10, 1890.]

The completion of the first ten volumes of the *American Journal of Philology* is an event which deserves to be marked. The establishment of such a quarterly journal ten years ago was a daring enterprise. The English *Journal of Philology* was dragging out a sluggish existence, with occasional intervals of a year between the appearance of its parts. The American Philological Association was kept alive only by a few faithful members; it has listened to many wild vagaries during its early years, and had not yet settled down to its most sober work. The American classical scholars who were most interested in the new developments of their science took in French and German periodicals, to which some of them contributed.

Philology in this country is not so old as many suppose. Latin, Greek, and mathematics were so long the staples of the college curriculum that many believe college graduates of a hundred years ago to have been more widely read in the classics than men of to-day. This is a mistake however. Latin was, indeed, the scholastic language, and was used on many occasions where men now use English; but that Latin was in quality not unlike the French of those boarding-schools where "no language but French is allowed at the table." The MS. of the Latin valedictory of Jonathan Edwards at Yale College in 1720 is in existence, and its Latinity is (to say the least) no better than that of the average "Latin salutatory" of 1890. No Greek but the New Testament seems to have been read in the regular course at Yale College until after the beginning of this century. "Previously to 1803," says the admirable Answers of the Immediate Government to questions proposed by a committee of the Overseers of Harvard College, in 1824, "candidates for admission were examined in Tully [Cicero], Virgil, the New Testament [in Greek], the rules of grammar and prosody, and the writing of Latin." In 1803, "the four fundamental rules of Arthmetick and Proportion, Sallust, and Collectanea Graeca Minora" were added to the requirements for admission to Harvard. In the college itself, for "several years prior to 1805, the course of Greek study consisted of about six books of Homer's Iliad, with a collateral translation in Latin, and about six books of Xenophon's Anabasis." Thus the Greek course of Harvard College at the beginning of this century was not broader nor more thorough than that of the best academies of the present time. And let no one think that the extra time was spent on mathematics. The extract quoted just above shows that the requirements for admission were raised in 1803 by the addition of the elements of arithmetic, but in the College only one recitation a week was given to mathematics, "except in the elements of geometry." In the Yale catalogue of 1833, candidates are asked to "observe that arithmetic is no longer studied in college, and an examination for admission is therefore held in both the theory and practice of arithmetic."

In Latin, the course of Harvard was confined to Livy, Terence, and Horace, until 1824, when "Terence is discontinued, and the following books are added to the Latin course, viz., Grotius de Veritate Religionis Christianae, 300 pages of Excerpta Latina, Cicero de Oratore, and two of the three volumes of Tacitus; besides Juvenal and Persius for those who choose Latin as a substitute for Hebrew" in Junior year.

The same year, 1805, which saw the improvement in the classical course at Harvard College, saw also the election of James Luce Kingsley to the Chair of Ancient Languages in Yale College. This scholar was one of the honored three (Day, Silliman, and Kingsley) whom the elder President Dwight gathered about him in the conduct of the college, and who made Yale what it was during the first half of the nineteenth century. Jeremiah Day was actively engaged in the service of Yale College as instructor for forty-eight years; Benjamin Silliman, fifty-four years; Kingsley, for just half a century. Without being versed in many of the niceties of modern philology, Kingsley was an acute and broad-minded scholar, who did much for the breadth and accuracy of philological study in America.

In 1815, John Snelling Popkin, D. D., of whose oddities tradition has still much to say, the most thorough Greek scholar of his time in this country, was elected College Professor of Greek at Harvard, while Edward Everett was made Eliot Professor of Greek Literature in the same college. These were the first permanent appointments for Greek instruction in that institution. Everett never did much teaching, but the professorships of Kingsley and Popkin were no sinecures. The former, in addition to his duties as Professor of Greek, Latin, and Hebrew, was also the incumbent of the Chair of Ecclesiastical History. Dr. Popkin taught all the Greek that was taught to the three lower classes at Harvard at a time when that college had 300 students, or about as many as Williams college has now. While Everett had between forty and fifty hours of instruction (mostly lectures to the Senior class) each year, Dr. Popkin had 785 hours, or half as many each week as Everett had in the whole year. Classes were taught in largish divisions, divided alphabetically, not according to scholarship. Considerable quantities of Greek and Latin were read, but in general all students covered the same ground. Under such circumstances, advanced work in the classics was impossible. The necessary apparatus for scholarly work was lacking also. The country did not contain needed books. Among the thousand volumes given to Yale College by Bishop Berkeley, in 1733, was an excellent collection of classical books, unquestionably the best in the country. But in that collection, as it chanced, was no complete copy of Æschylus, and, a hundred years ago, neither Yale nor Harvard had a copy of Æschylus, and there is no evidence of the existence of a copy of that "father of Greek tragedy" in the libraries of Columbia or Princeton at that time. Harvard seems to have had no complete copy of the Attic Orators in 1790.

What has been said above indicates the rudimentary stage of classical scholarship in this country at the beginning of this century. Woolsey doubtless had more influence than any one else in setting a higher standard and giving a more vigorous tone to these studies. Hadley and Whitney were his apt pupils. Soon after the middle of this century two young Americans, Goodwin from Harvard and Gildersleeve from the University of Virginia, studied in Göttingen. These two scholars have been for years the unquestioned leaders of classical studies in America. Prof. Gildersleeve was called in 1876 to the first chair established in the Johns Hopkins University.

The combination of Prof. Gildersleeve's energy and a grant of assistance from his university was necessary for the establishment of the *American Journal of Philology*. No other university had funds for such a use. No other scholar was better fitted for the work by thorough training, by familiarity with all foreign work in his department, by broad interests and exact knowledge in a great variety of philological subjects, by a keen linguistic sense, and the sharpest eyes for typographical errors. With the best of German scholarship, Prof. Gildersleeve is never heavy nor dull. No one ever complained that the editor wrote too much for his *Journal*, and most readers have turned at once, on opening a number, to any article or note from his pen.

The *American Journal of Philology* has never lowered its high standard in order to present popular statements of philological truths. Perhaps it might have been more useful to the ordinary teacher in high schools and academies if it had not aimed to publish only what would be recognized as good original work. Of the 550 pages of the yearly volume, about 300 pages are devoted to original articles, and the remainder to book notices, reports (summaries) of philological periodicals, and bibliography. Almost exactly half the space, on the average, is given to articles of special interest to classical scholars. The rest of the space is devoted to articles and reports on linguistics, Sanskrit, Semitic languages, Teutonic languages, Romance languages, English, etc. Of the classical articles, about half have to do with Latin and half with Greek. The latter seem, in general, the more able—largely because of the editor's own series of articles on Greek syntax. But it is noteworthy that most of the articles on Latin subjects have to do with out-of-the-way authors, like Verrius Flaccus, Nonius Marcellus, and Maximinianus—not with the great authors—and that so few of our Latinists have contributed to the *Journal*. No article has treated of Cæsar, Catullus, Cicero, Ennius, Horace, or Ovid, and but two of Vergil. In linguistics, the reader finds valuable articles by Prof. Whitney on "What is Articulation," and "Logical Consistency in Views of Language," and by Prof. Bloomfield (Whitney's pupil) on the Greek accent and the "Ablaut of Greek Roots." Prof. J. Rendell Harris contributes studies on stichometry which make the *Journal* a store-house of information on that subject.

In general, the range of topics treated in the *Journal* is wide, from "Recent Platonism in England" to the "Reduction of EI to I in Homer;" from five articles on the "Pennsylvania-German Dialect" to the "Babylonian Woman's-language," from "Charleston Provincialisms" to the "Harbors of Ancient Athens" and the Revision of King James's New Testament.

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*THE AMERICAN JOURNAL OF PHILOLOGY. Edited by BASIL L. GILDERSLEEVE. Vols. I-X. Baltimore. 1880–1889.

GENERAL INDEX TO THE AMERICAN JOURNAL OF PHILOLOGY, VOLS. I-X. Prepared by W. MUSS-ARNOLT. Baltimore. 1890. 44 pp., 8o.

Only one article is to be found, in the ten volumes of the *Journal*, on the aboriginal languages of America, few articles on antiquities (a province which now may be left in part for the *American Journal of Archæology*), few on exegesis, few (and these mainly by Englishmen) on textual criticism. The department of book reviews is not so complete as it should be, but such reviews often have a money value, and are not easily obtained for such a periodical as the *Journal*. The reports of periodicals contain a great amount of philological information in a condensed form. The bibliography is important for those who do not have at hand the fuller German bibliographical publications.

The last number of the tenth volume contains a closely printed index of 44 pages to the work of these volumes, and is an index not merely to the philological work of this country, but to much of the best work in this department abroad, for ten years. The *Journal* has had in all 133 contributors, but several of these have furnished only reports. The only contributor to the first volume who has an article in the tenth volume is an Englishman—Robinson Ellis. The list of contributors to the first volume contains better known names—Gildersleeve, Goodwin, Packard, F. D. Allen, Carter, Whitney, Toy, Nettleship, C. D. Morris, Ellis, Campbell, etc.—than the present list. Evidently the editor has not received such scholarly support as he had a right to expect. In the first volume four articles were by scholars at Yale and two by Harvard professors. In the last three volumes no article has appeared from either of those institutions. A fairly careful survey does not find in the ten volumes of the *Journal* a single article by any one at the colleges of Amherst, Brown, Dartmouth, or Williams. And yet this has been a period of unexampled philological activity. Very recently University Studies have been published at Harvard, Cornell, the University of Nebraska, and the University of Texas, while the *Journal of Archæology* and *Modern Language Notes* take much that would have gone to the *Journal of Philology;* and the *Classical Review*, which is lighter in its tone and aims to give a survey of work in classical philology, has been introduced in this country—to say nothing of the Transactions of the Philological Association, and the "Papers" of the Archæological Institute and the School of Classical Studies at Athens. There are manifest inconveniences in this scattering publication of American philological work, which perhaps overbalance the additional stimulus that is afforded by so many media.

The first ten volumes of the *American Journal of Philology* contain plenty of sound learning—a mass of valuable philological facts, of which many are not yet brought into ordinary hand-books. Few scholars would fail to profit (as the reviewer has profited) from the study or review of the back volumes of the *Journal*. For the honor and welfare of his science in this country, we trust that the editor will not weary of his efforts, and that he may obtain more abundant support.

CONTRIBUTIONS TO ASSYRIOLOGY AND COMPARATIVE SEMITIC PHILOLOGY.

(Beiträge zur Assyriologie und vergleichenden semitischen Sprachwissenschaft.)

Edited by Professor Delitzsch, *of Leipsic, and Professor* Haupt, *of Baltimore. Published with the coöperation of the Johns Hopkins University, Baltimore.*

Vol. I. 636 pp., Royal 8o, 2 Portraits, 14 Plates of Inscriptions, $8.00. Part I, 368 pp., $4.50. Part II, 268 pp., $3.50.

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1. Haupt. On the nominal prefix *na* in Assyrian.
2. Praetorius. On Ethiopic Grammar and Etymology.
3. Haupt. The XIIth tablet of the Babylonian Nimrod Epic (9 plates).
4. Flemming. The literary remains of G. F. Grotefend (with portrait).
5. Haupt. Results of a new collation of the Izdubar legends.
6. Nestle. On the verbs mediae א in Syriac.
7. Haupt. On Assyrian nouns.
8. Delitzsch. Assyro-Babylonian Letters.
9. Haupt. On the Semitic sounds and their transliteration.
10. Jeremias. The Sun-god stone of Sippar.
11. Haupt. On the semi-vowels u̯ and i̯.
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13. Haupt. Additions and corrections.
14. Steindorff. The cuneiform transliteration of Egyptian names.
15. Haupt. List of abbreviations.

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2. Kraetzschmar. Relative pronoun and relative clause in Assyrian.
3. Jäger. The semi-vowel i̯ in Assyrian.
4. Zehnpfund. Bills of Babylonian Weavers from the temple archives at the time of Nabonidus.
5. Flemming. Job Ludolf and his Ethiopic correspondence with his Abyssinian teacher, Abba Gregorius (with portrait).
6. Kraetzschmar. The preposition *ša* in Assyrian.
7. Jäger. On the sign for the hiatus in Babylonian.
8. Steindorff. The cuneiform transliteration of Egyptian names.
9. Delitzsch. Assyro-Babylonian Letters.
10. Haupt. *Makkûru or makkûru.*
11. Zehnpfund. Additions and corrections.
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